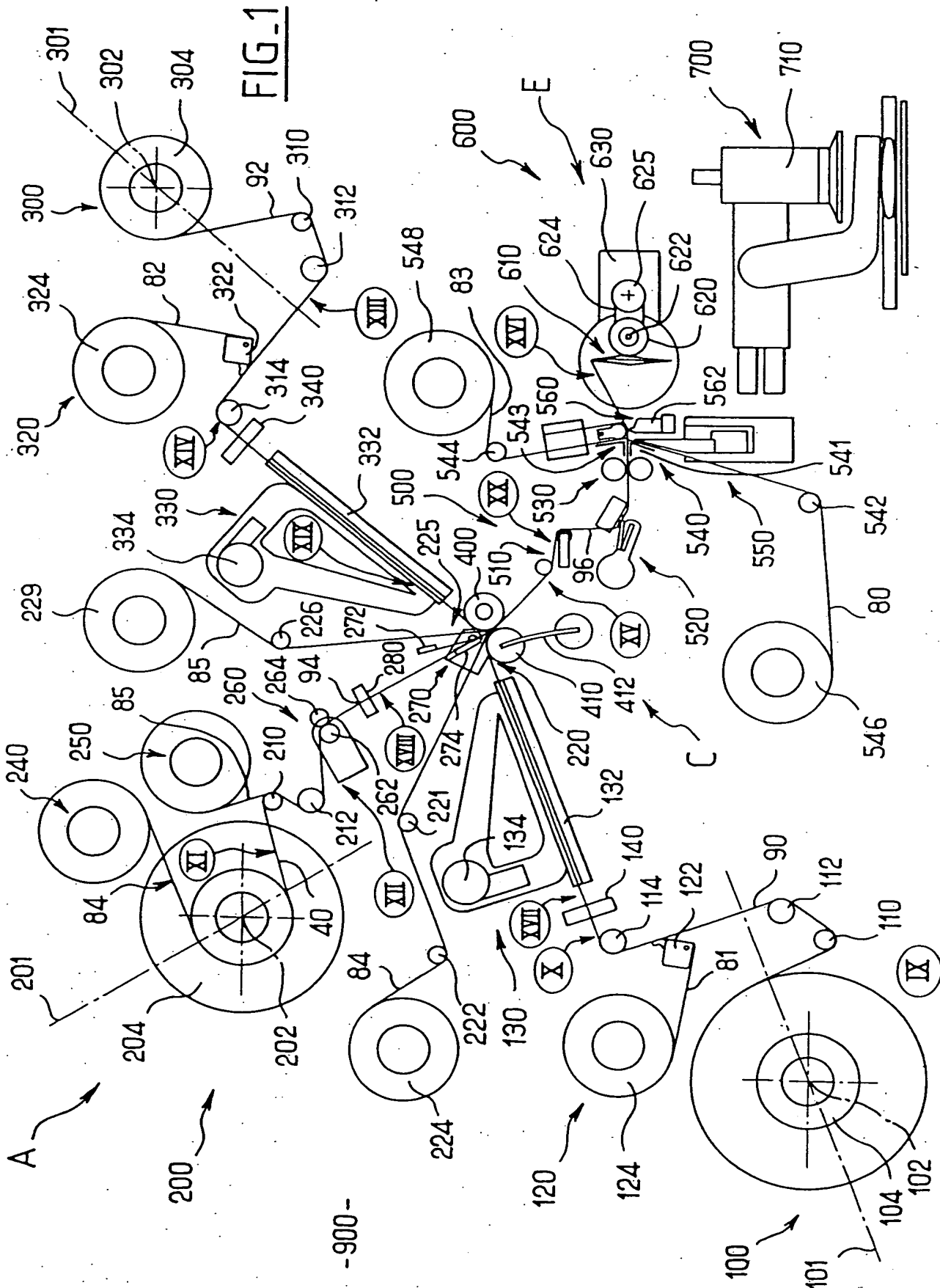


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FIG. 2

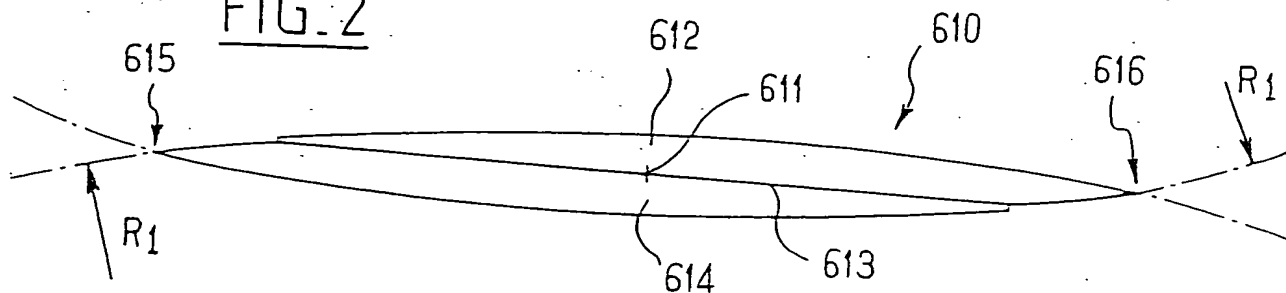


FIG. 3

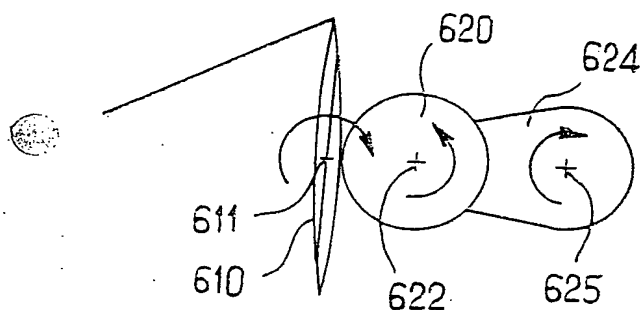


FIG. 4

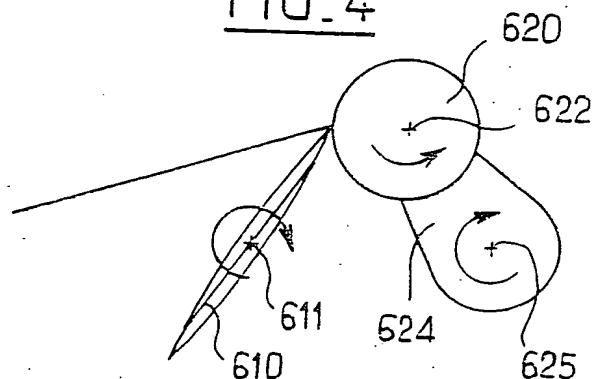


FIG. 5

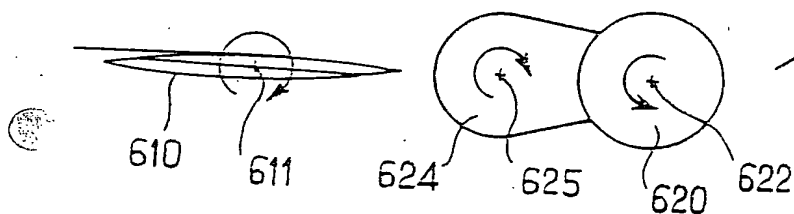


FIG. 6

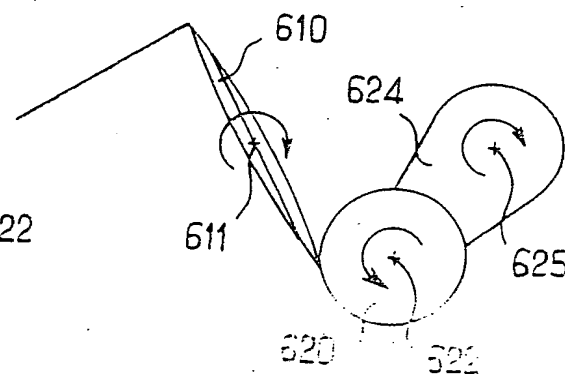
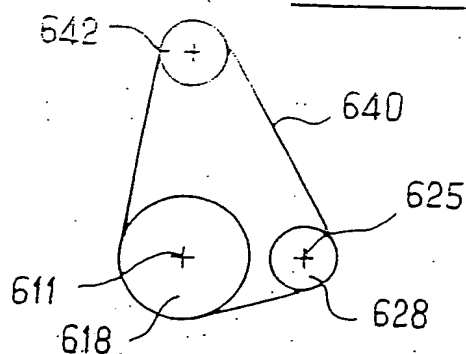


FIG. 22



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FIG. 8

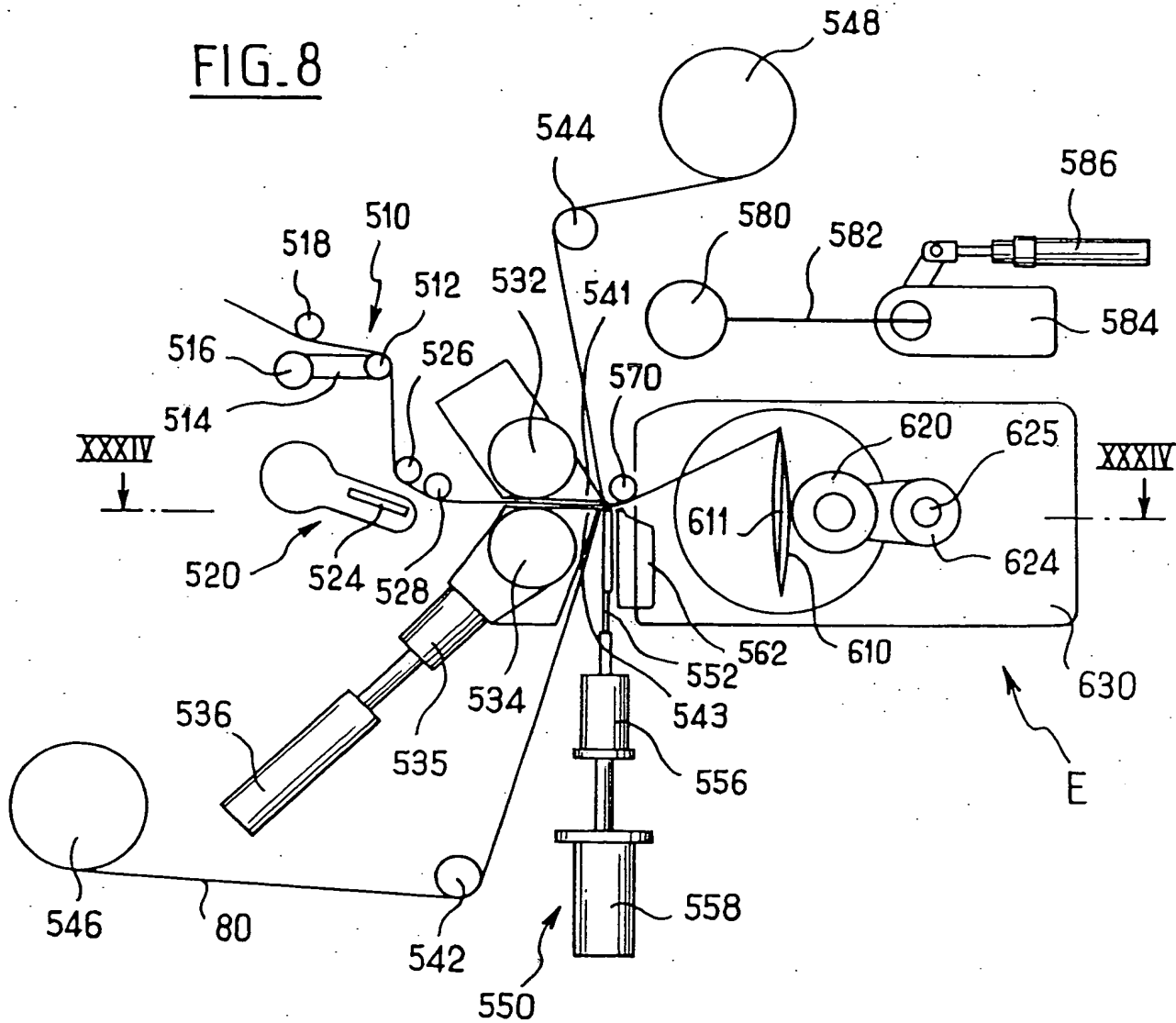
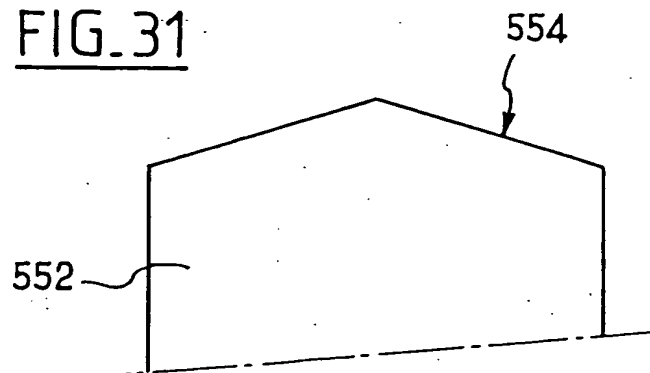


FIG. 31



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FIG. 9

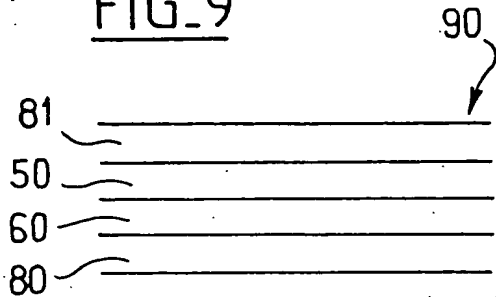


FIG. 13

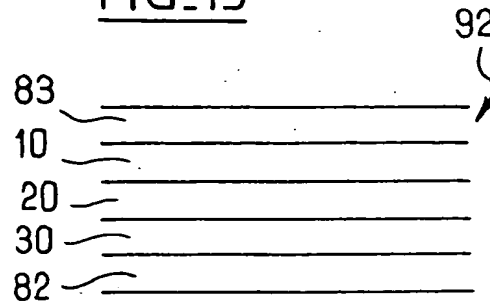


FIG. 10

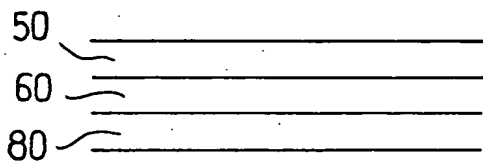


FIG. 14

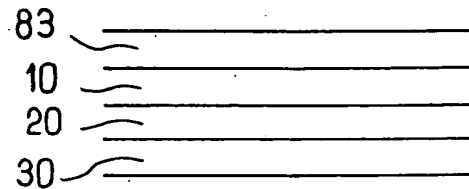


FIG. 11

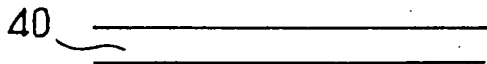


FIG. 15

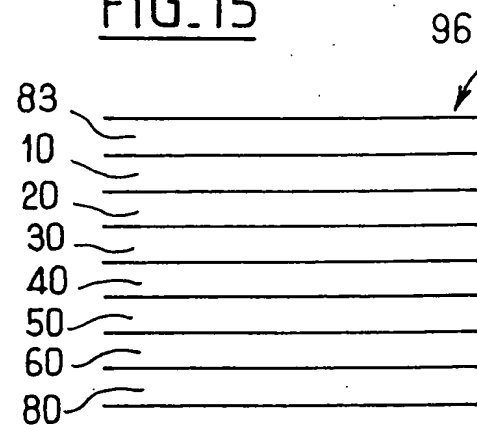


FIG. 12

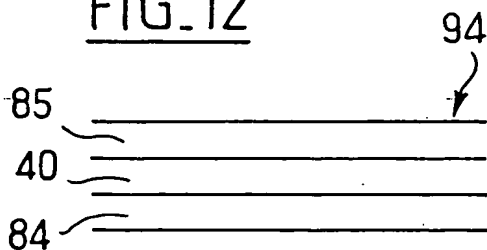
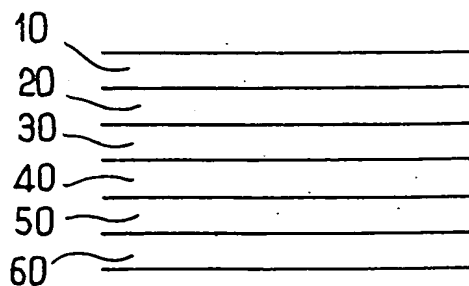


FIG. 16



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FIG. 17

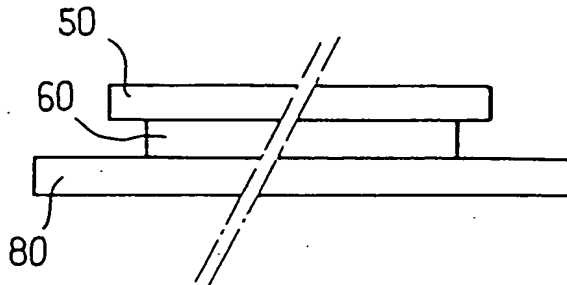


FIG. 18

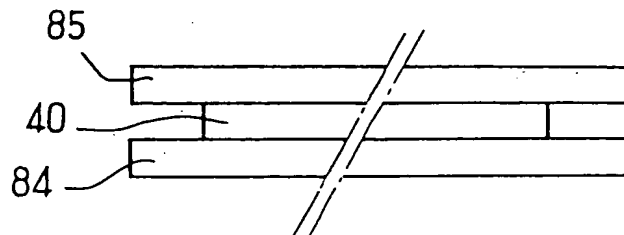


FIG. 19

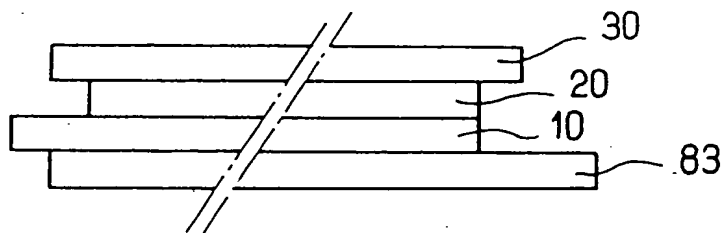
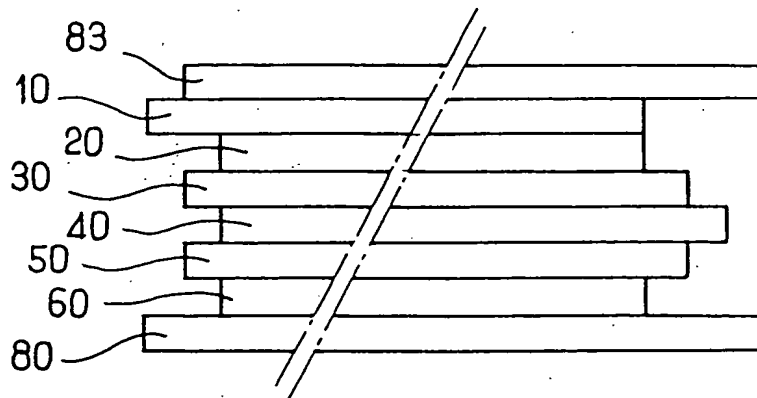
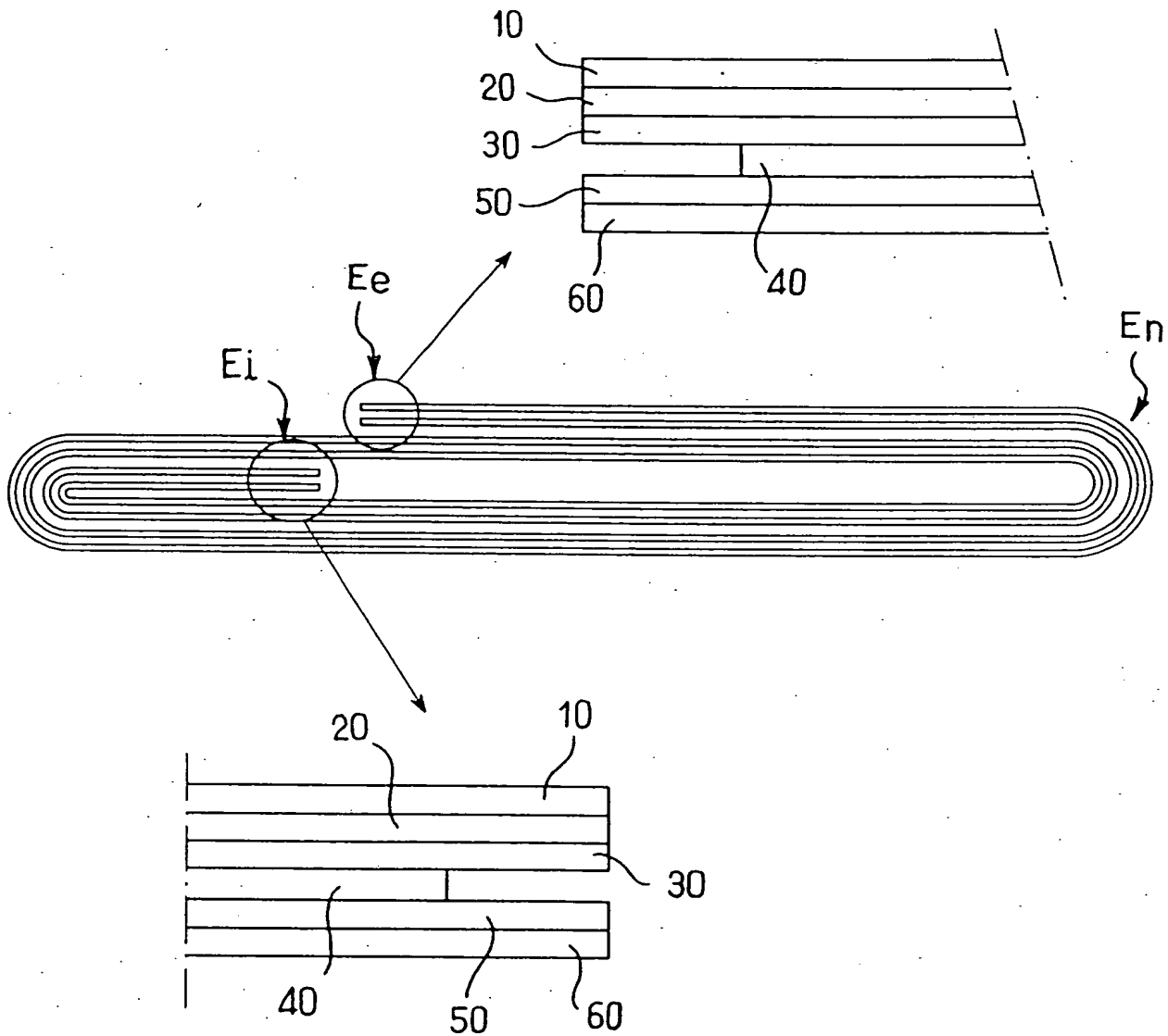


FIG. 20

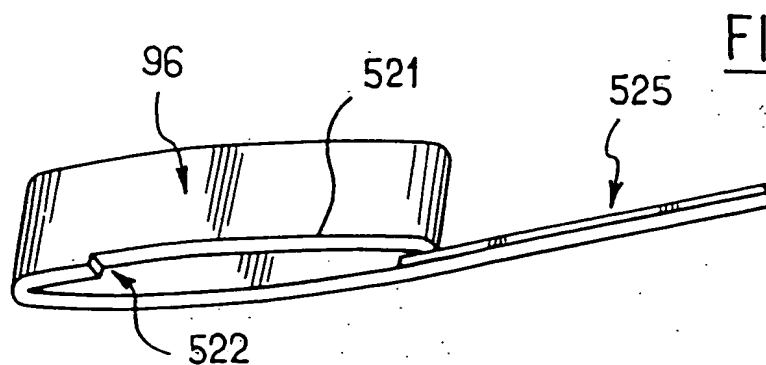
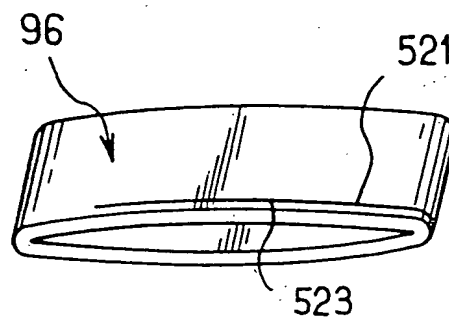
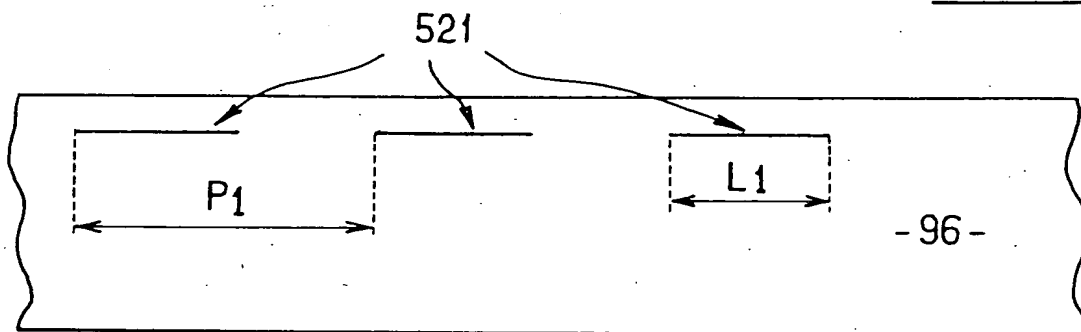
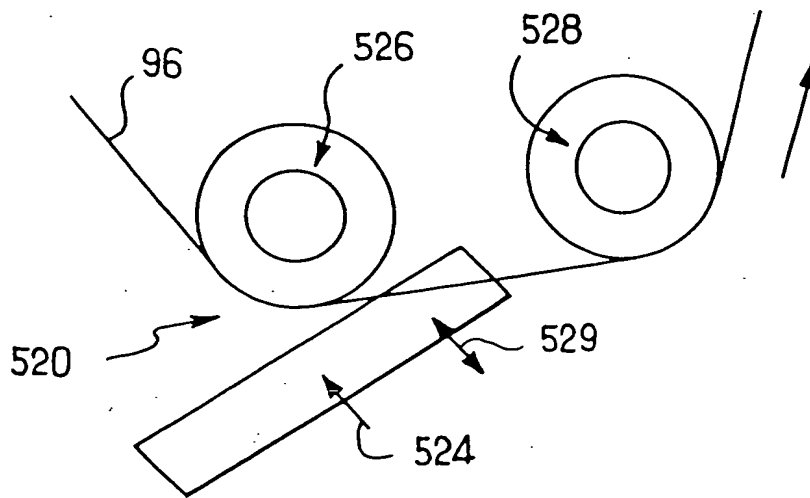


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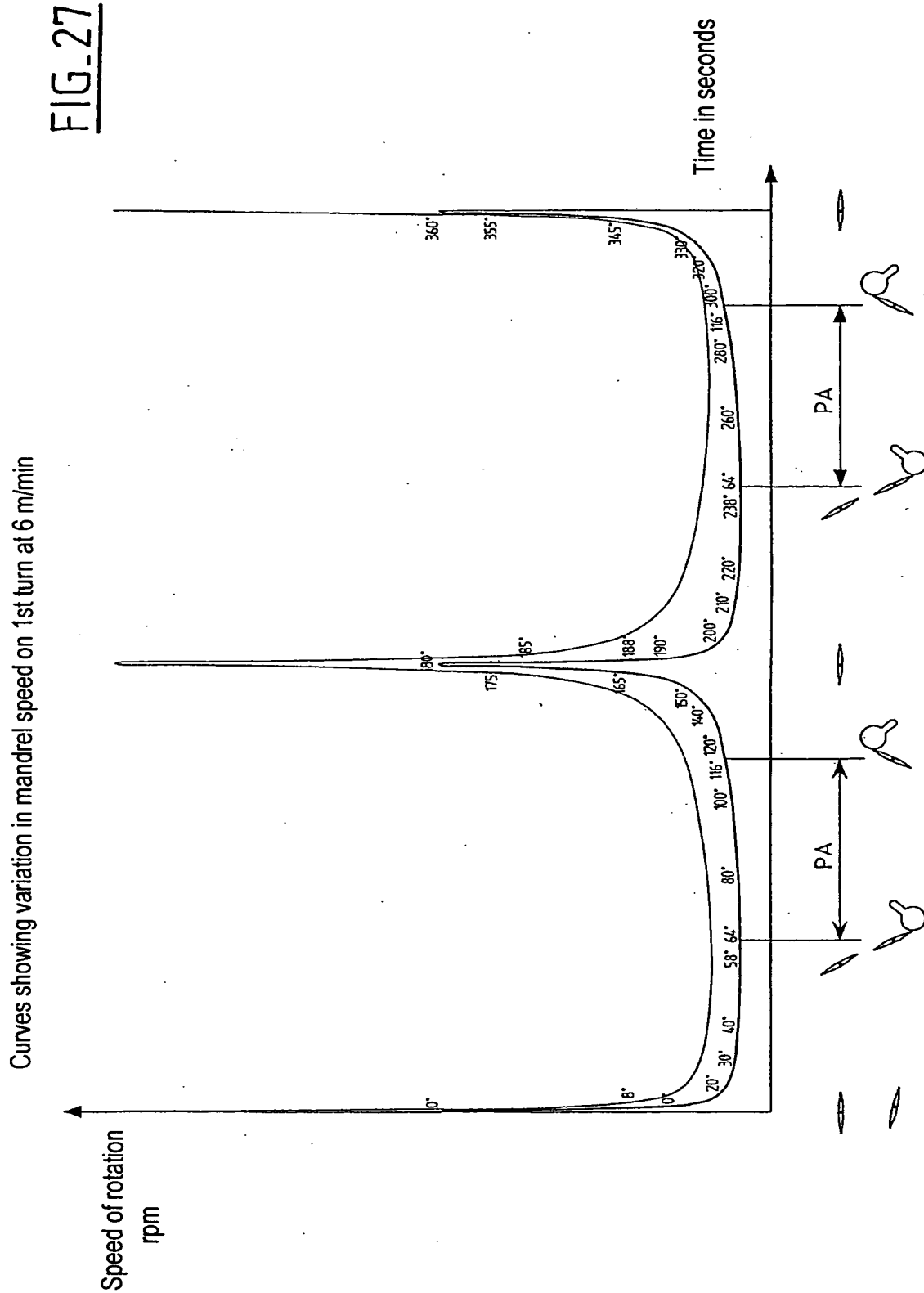
FIG. 21



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FIG. 28

Curves showing variation in mandrel speed when carrying a thickness of 5.5 mm (19th turn in this example)

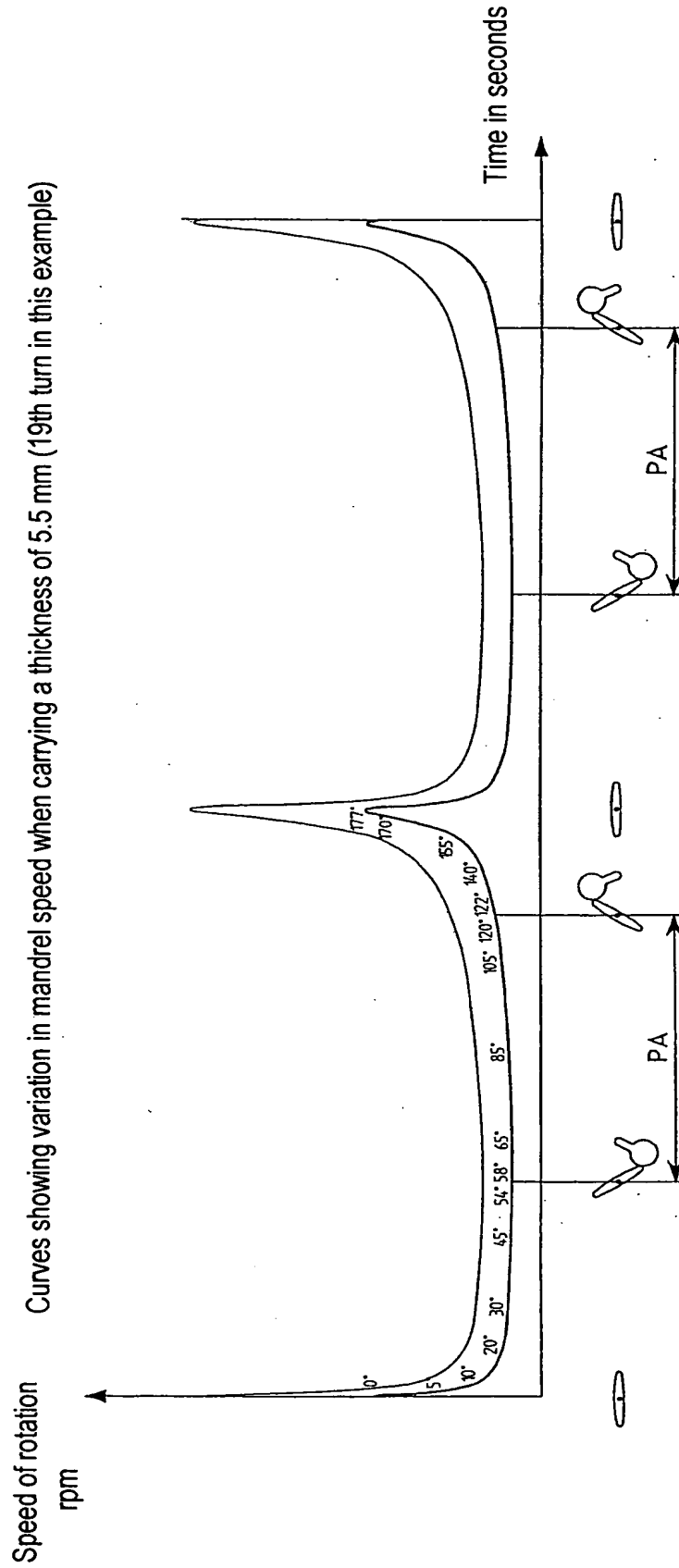
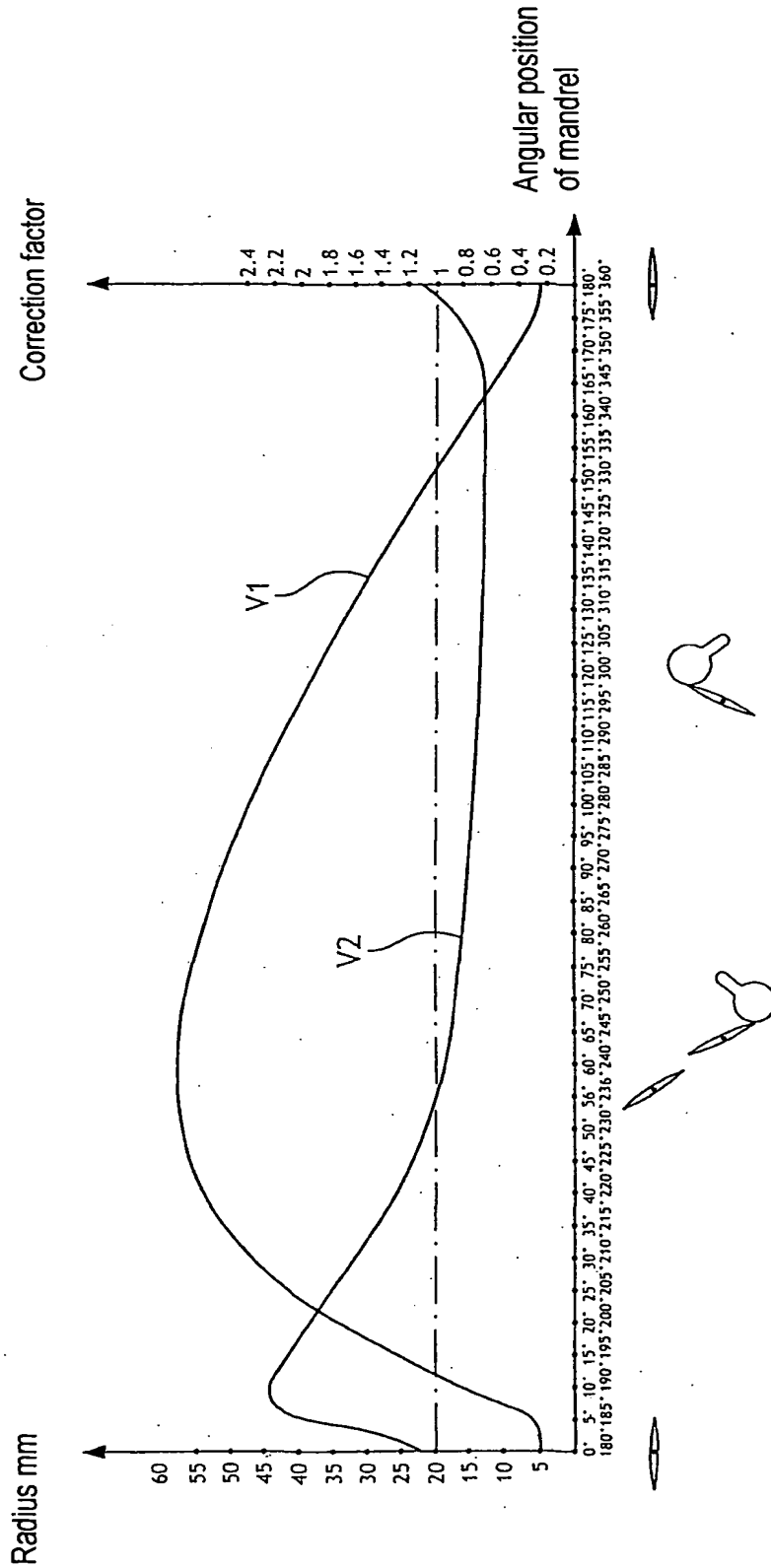


FIG. 29



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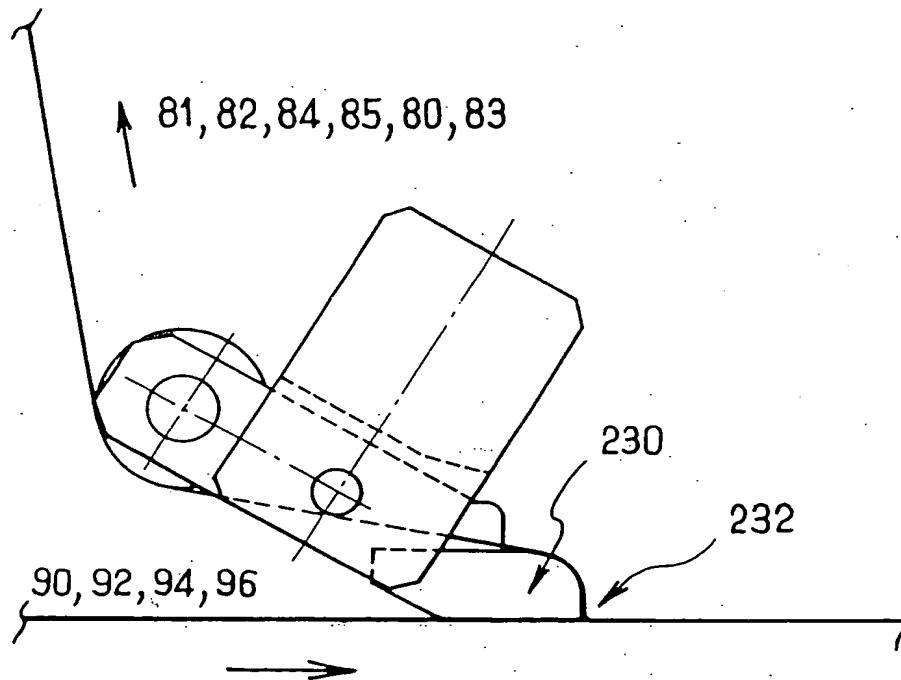
FIG. 30

Angle in °	Winding radius	Correction factor	1st turn		2nd turn		10th turn		23rd turn	
			r	N	r	N	r	N	r	N
0	180	1.109980	5.22	182.87	5.44	175.41	7.22	132.26	10.11	94.49
1	181	1.200700	5.30	180.17	5.54	172.36	7.46	127.98	10.58	90.23
2	182	1.319033	5.50	173.50	5.77	165.57	7.88	121.21	11.31	84.45
3	183	1.483629	5.87	162.77	6.16	154.93	8.54	111.85	12.39	77.04
...				
80	260	0.796343	54.46	17.53	54.62	17.48	55.89	17.09	57.96	16.47
85	265	0.774575	52.97	18.03	53.13	17.97	54.37	17.56	56.38	16.94
...				
178	358	0.977600	5.39	177.31	5.58	171.10	7.15	133.65	9.69	98.58
179	359	1.037420	5.26	181.63	5.46	174.74	7.12	134.03	9.82	97.22
180	360	1.109980	5.22	182.87	5.44	175.41	7.22	132.26	10.11	94.49

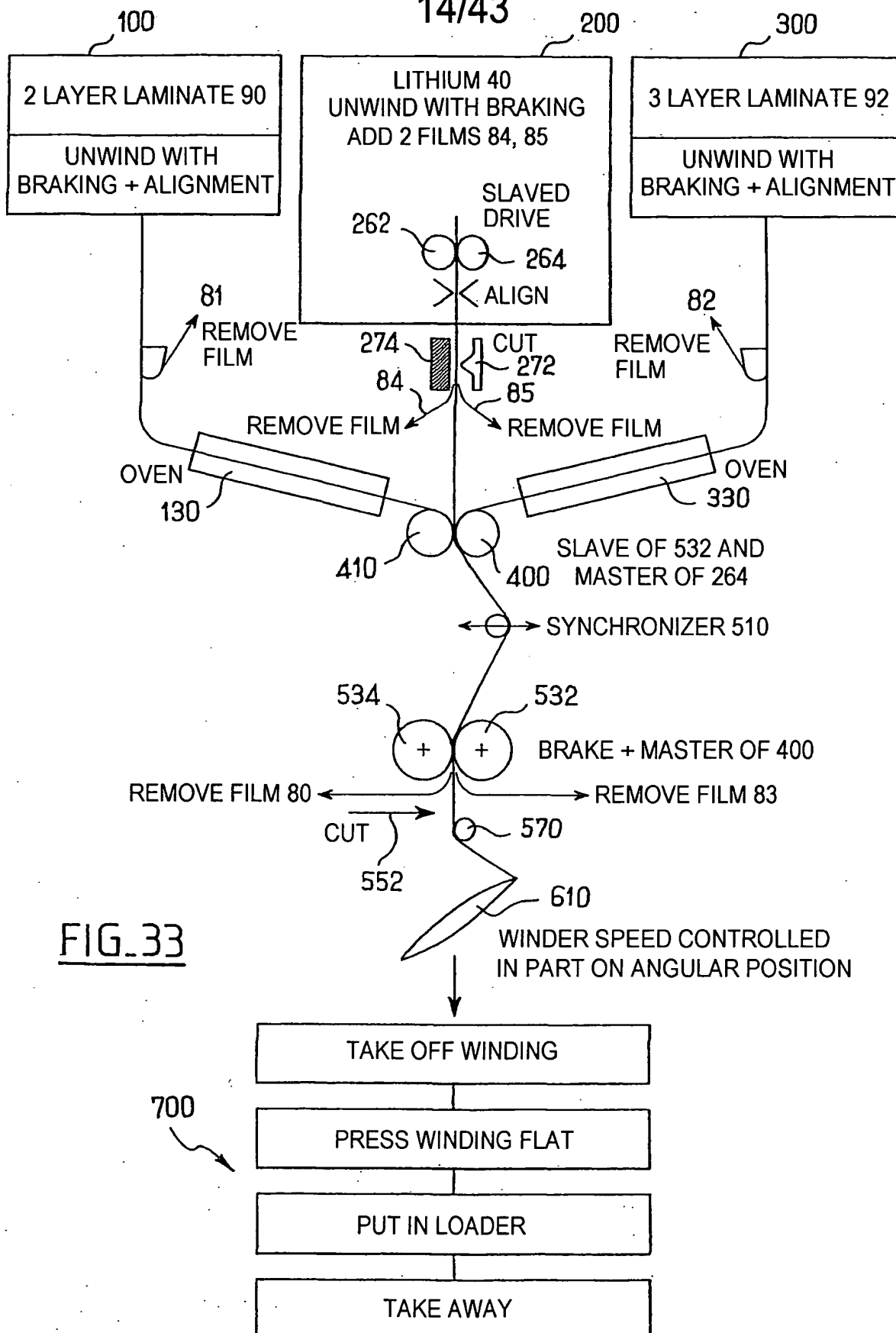
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FIG. 32

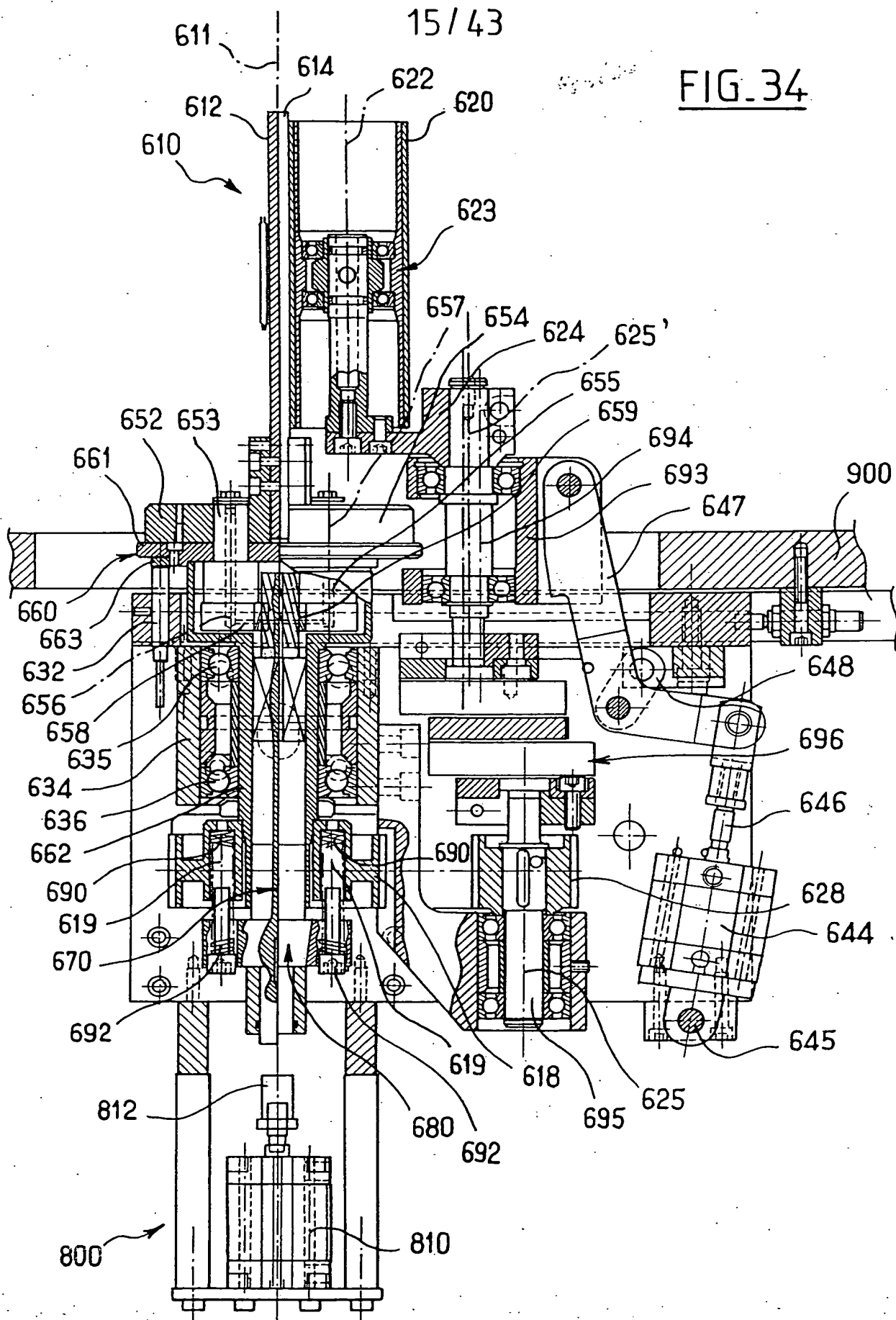


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FIG. 34



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FIG. 35

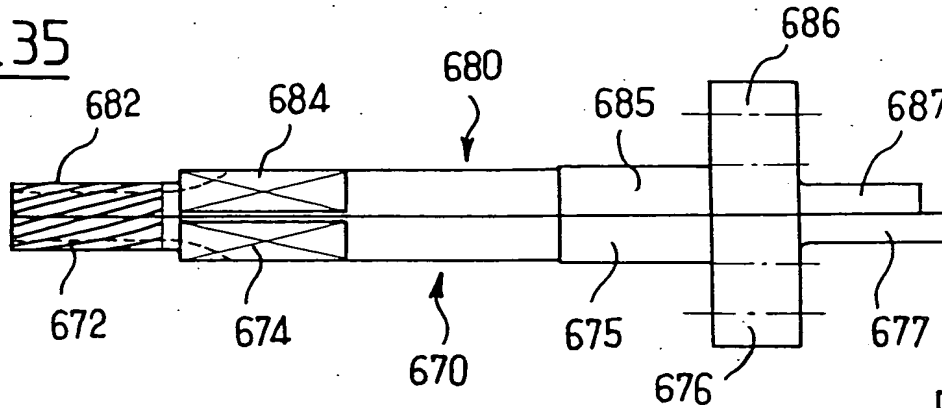


FIG. 36

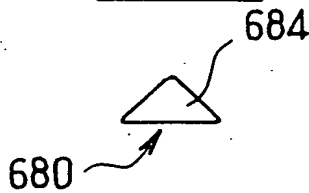


FIG. 37

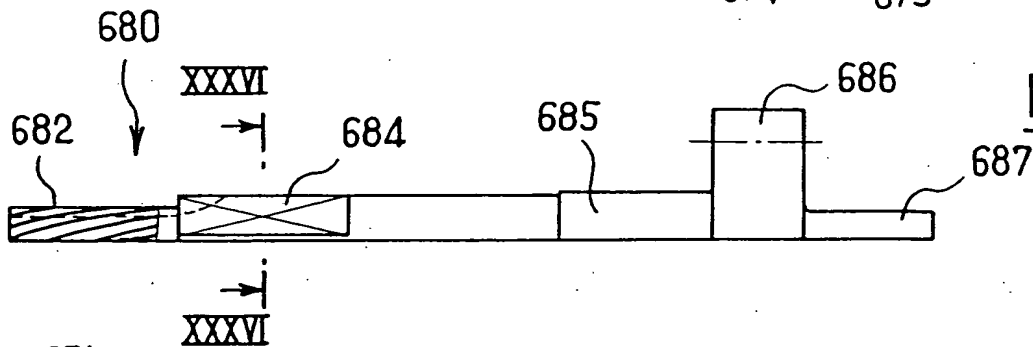
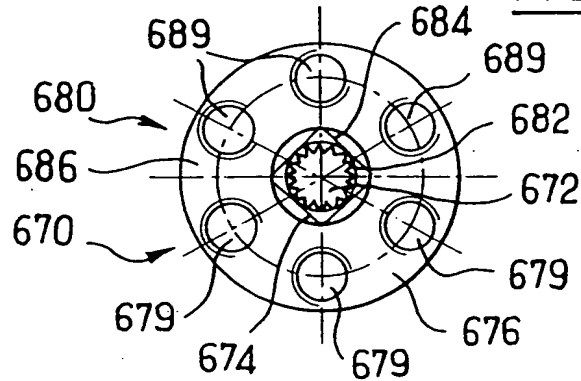


FIG. 38

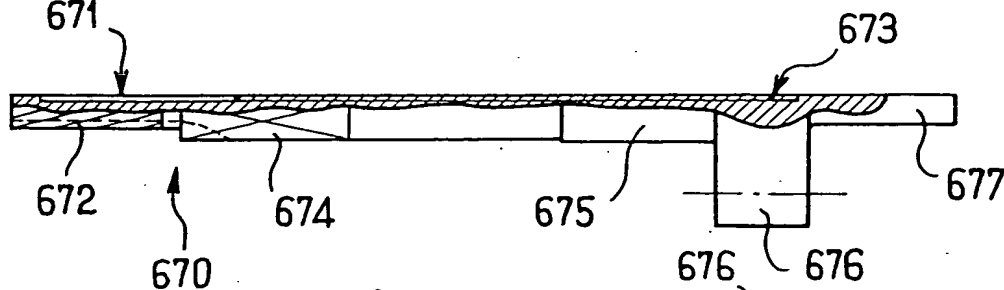


FIG. 39

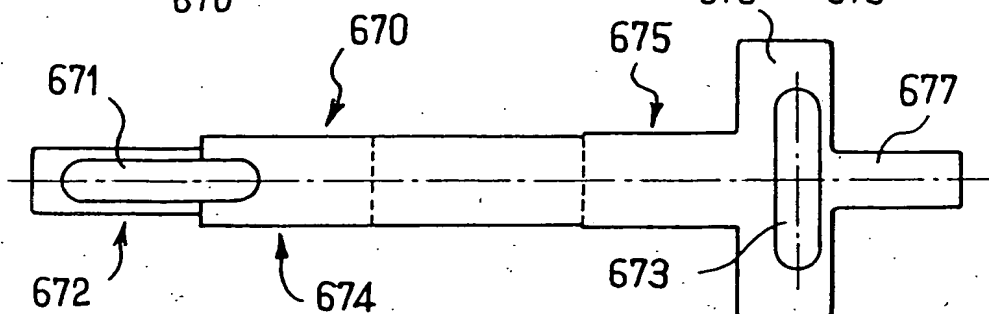
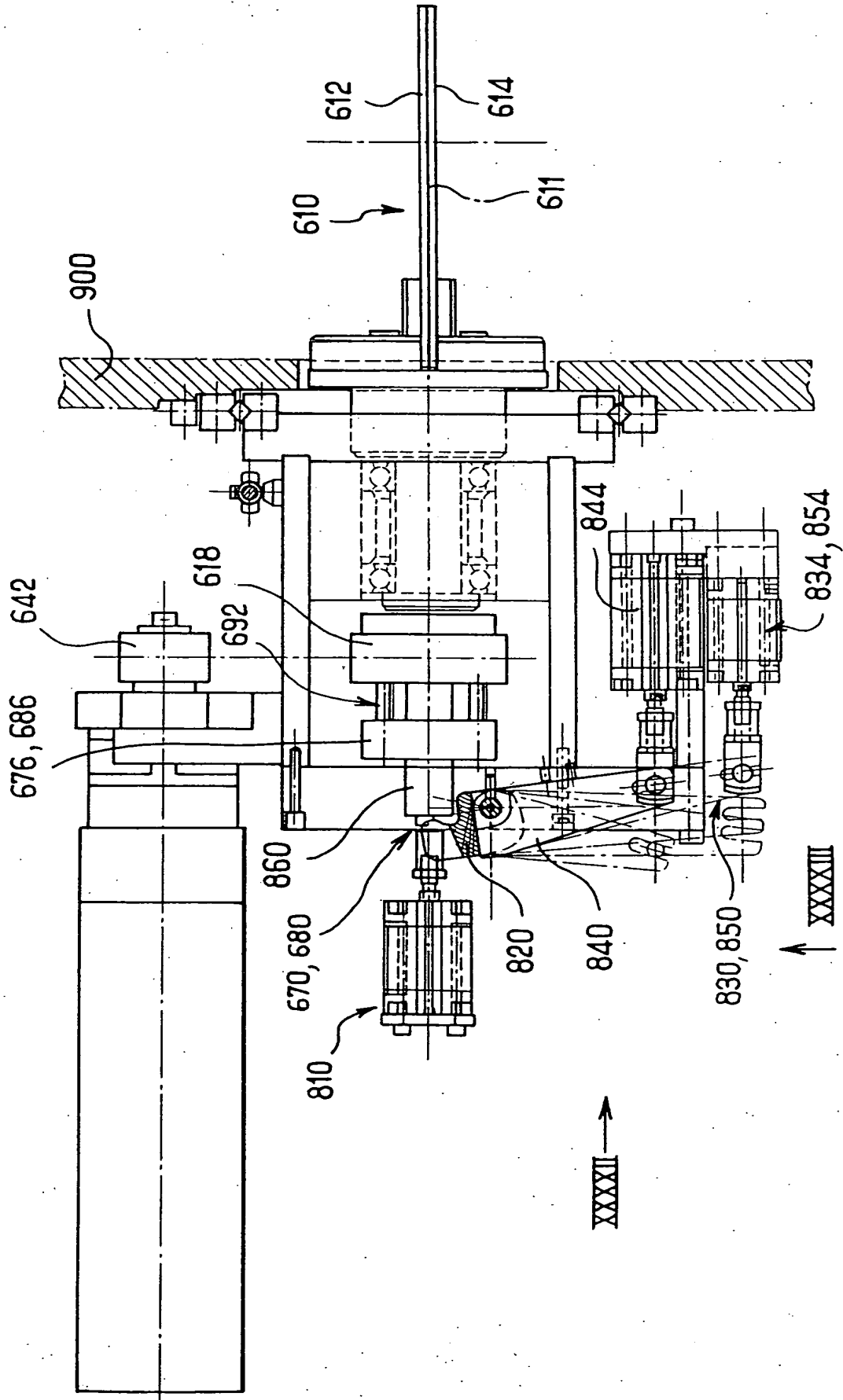


FIG. 40

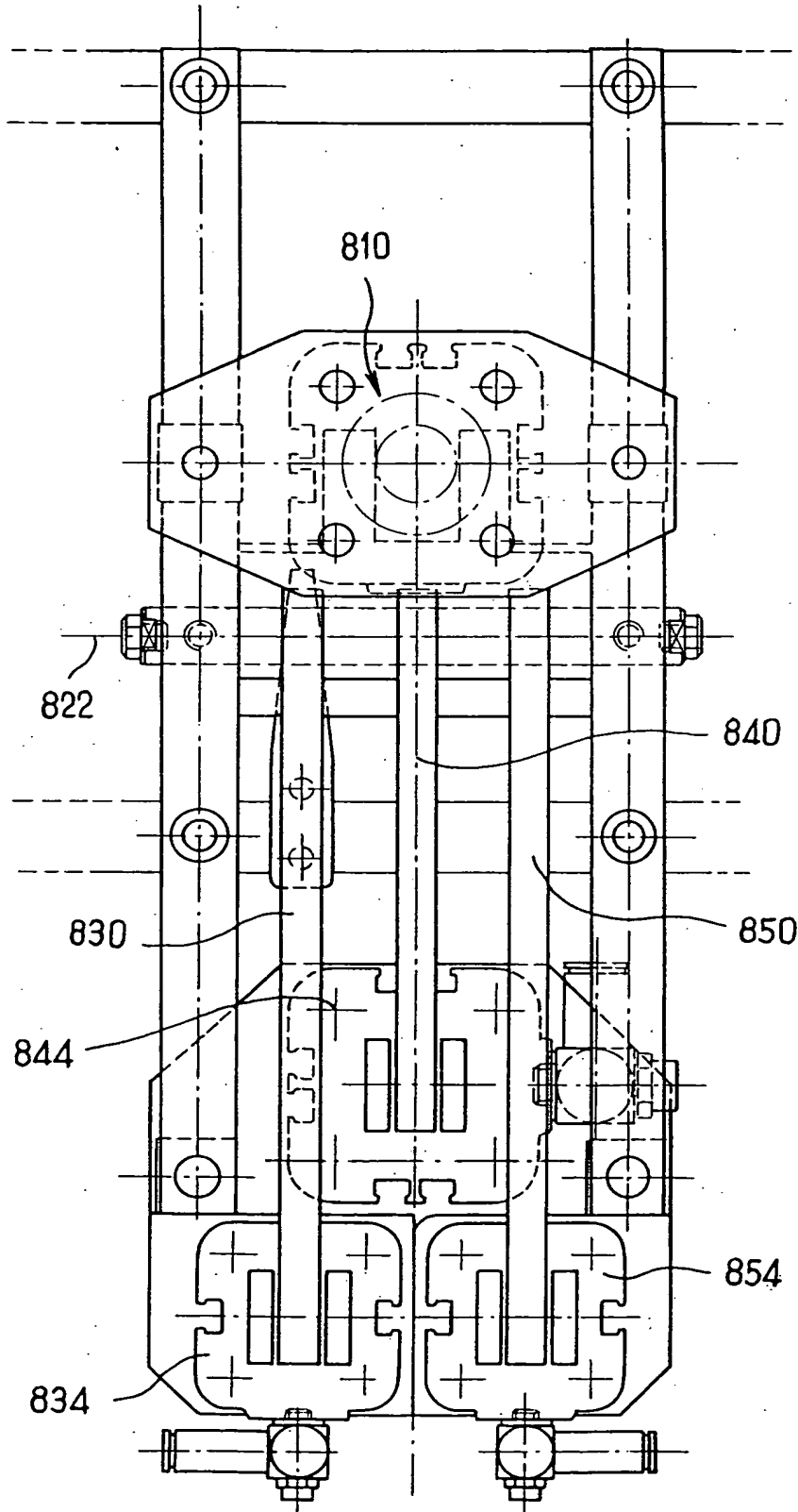
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FIG. 41



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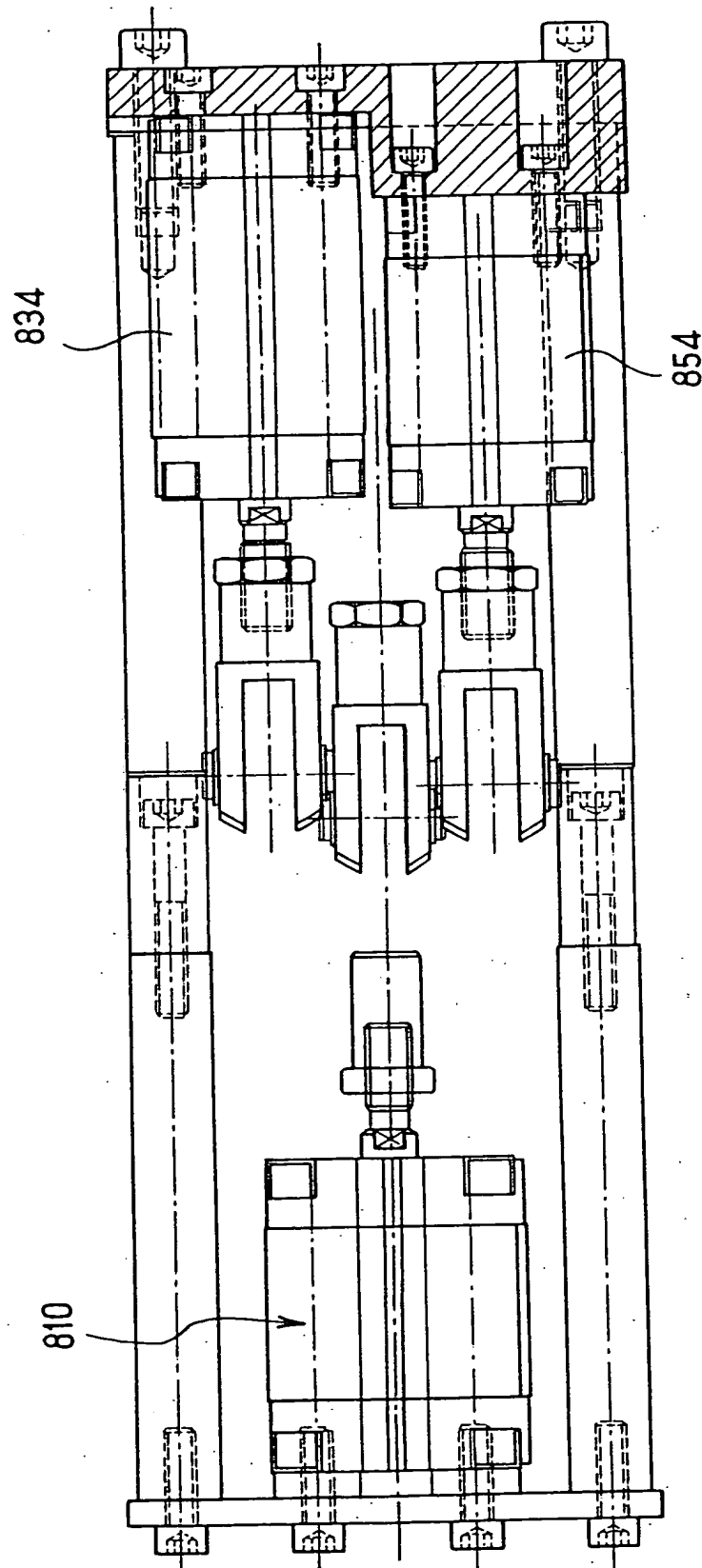
FIG_42



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FIG. 43



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FIG. 44A

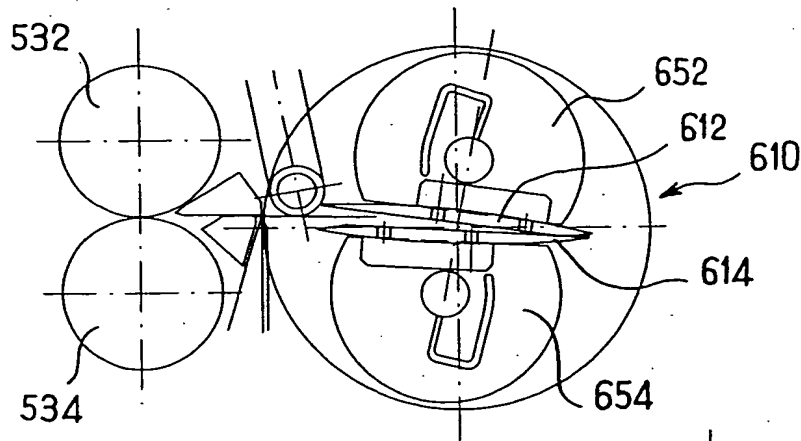


FIG. 44B

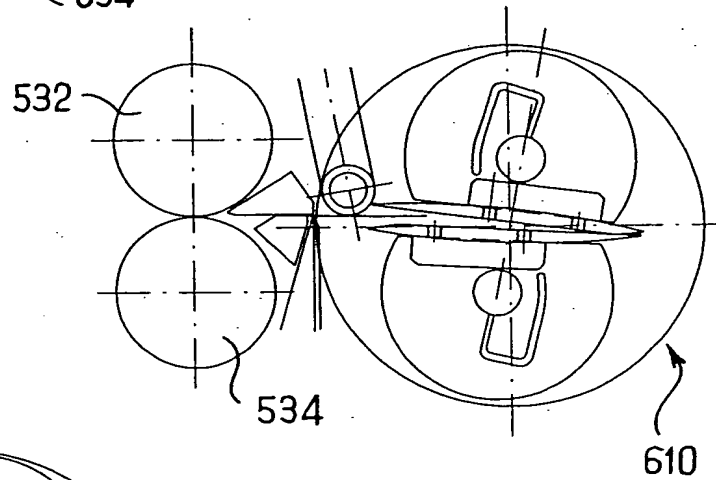


FIG. 44C

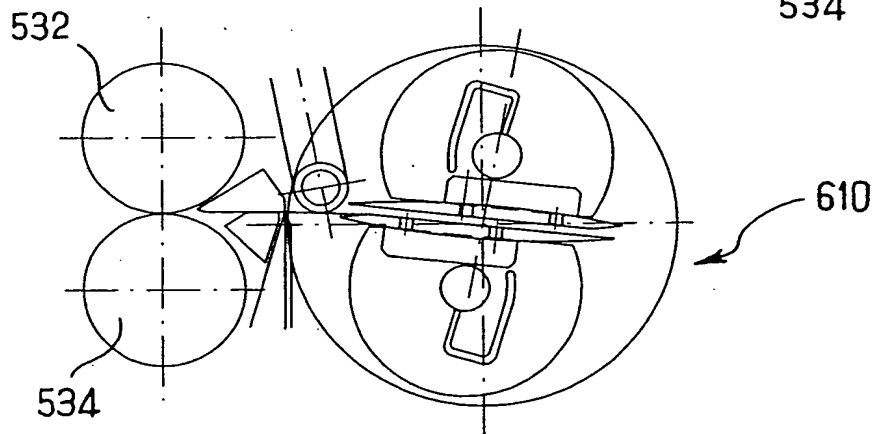
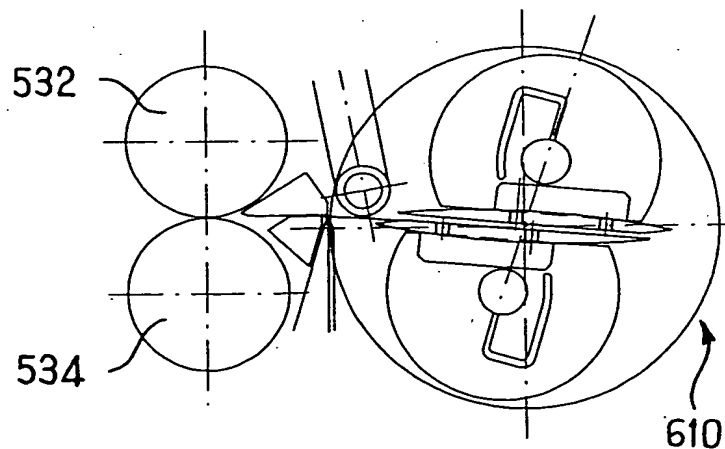


FIG. 44D



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FIG. 44E

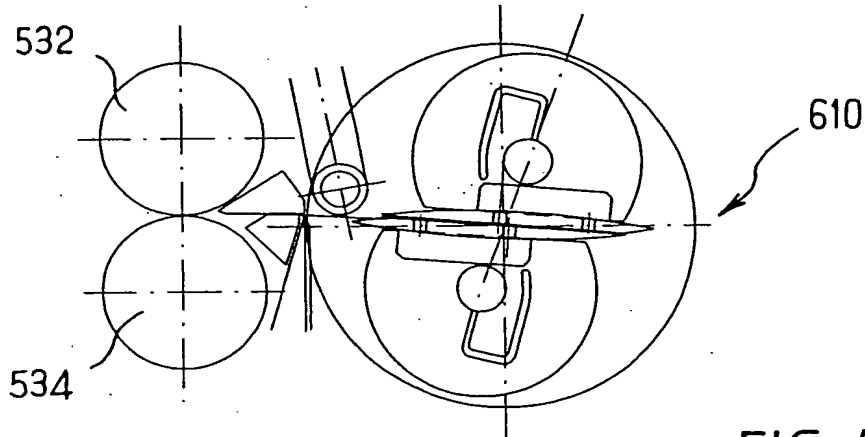


FIG. 44F

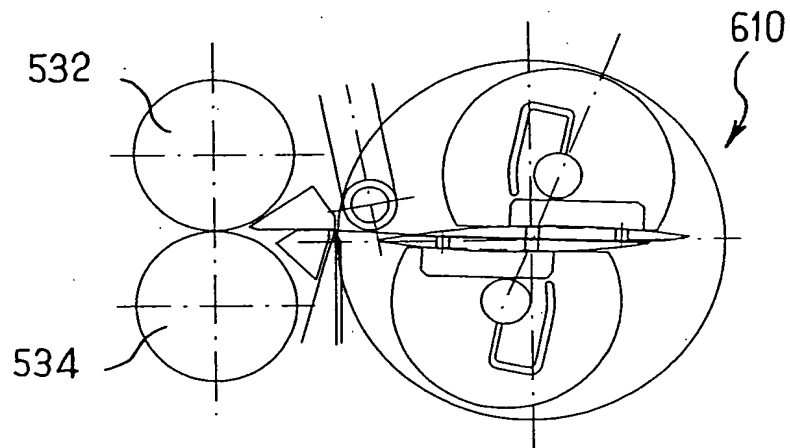
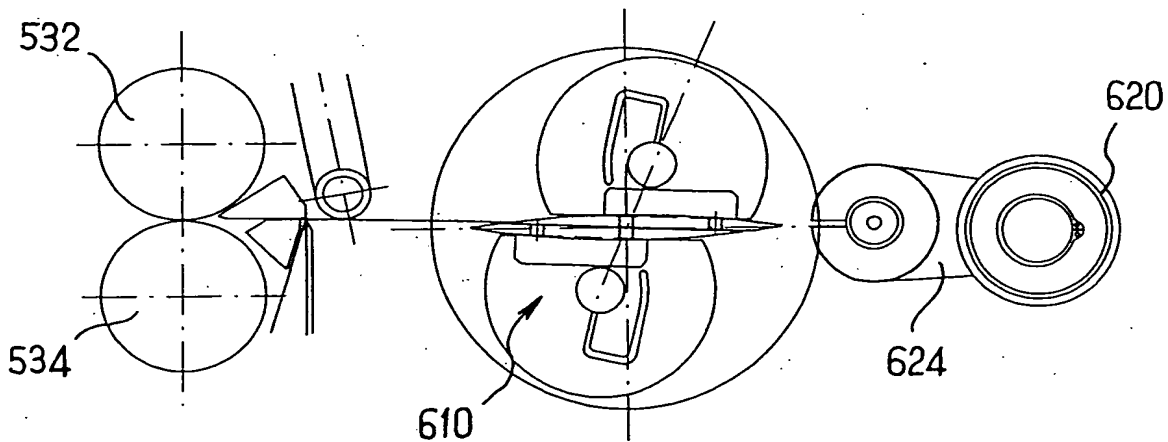


FIG. 45



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FIG. 46A

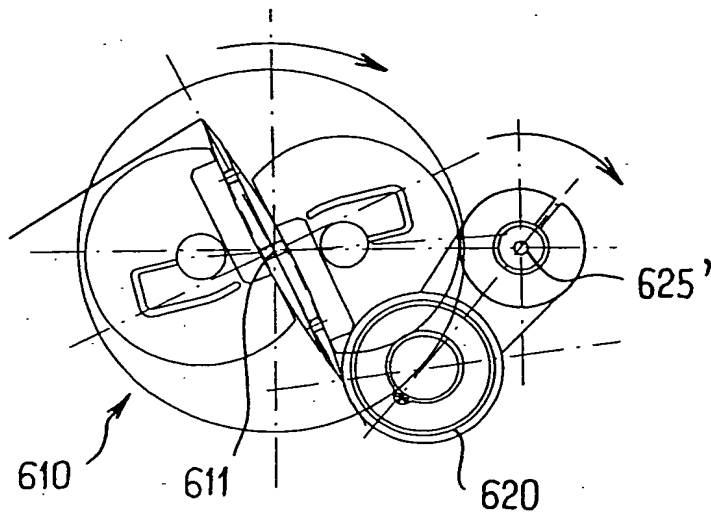


FIG. 46B

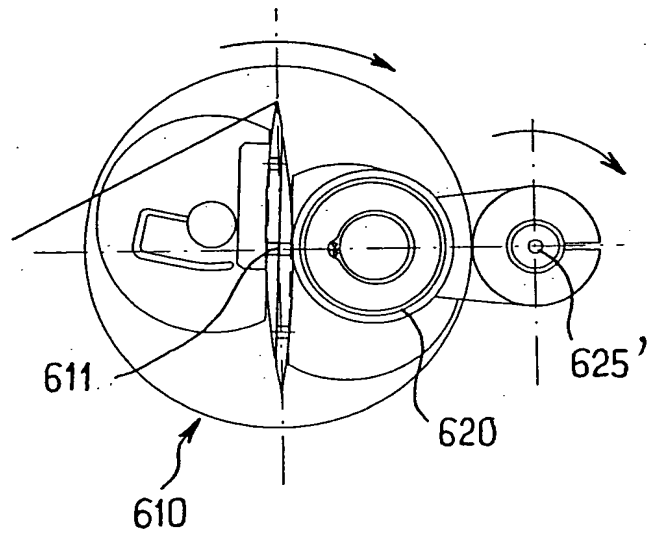


FIG. 46C

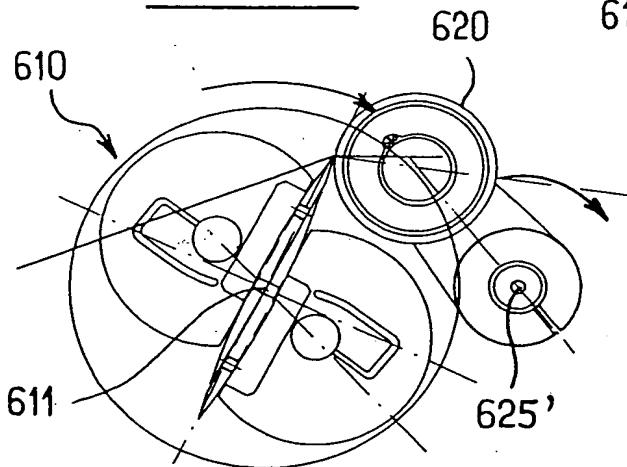
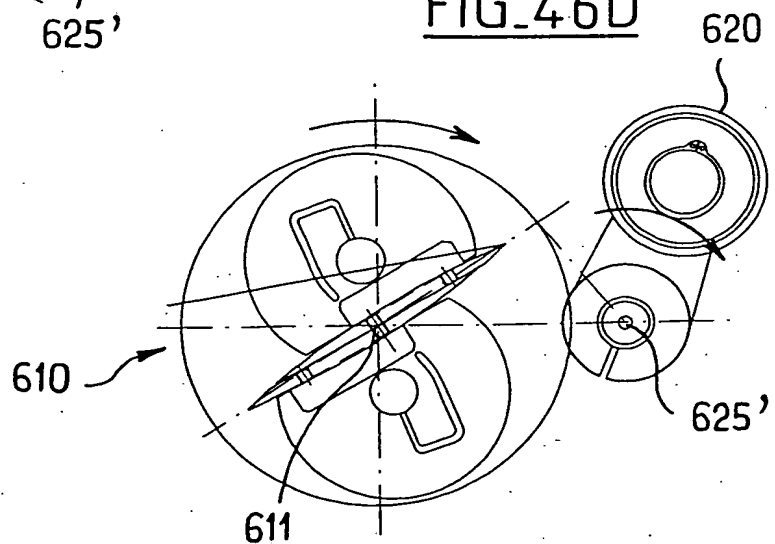


FIG. 46D



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FIG. 46E

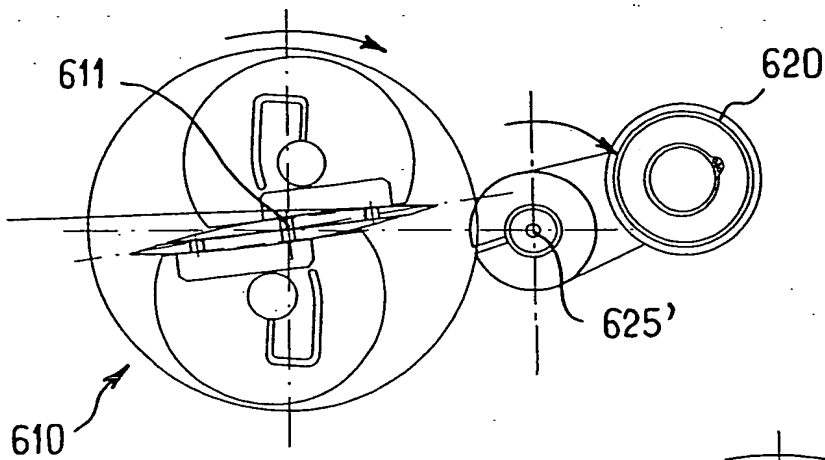


FIG. 46F

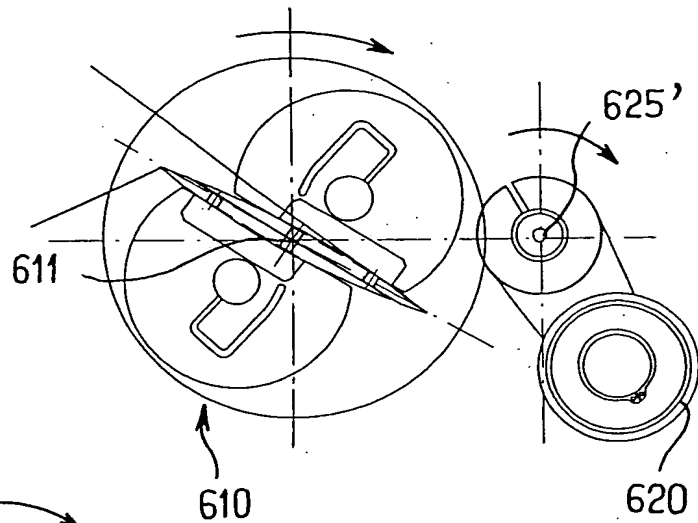


FIG. 46G

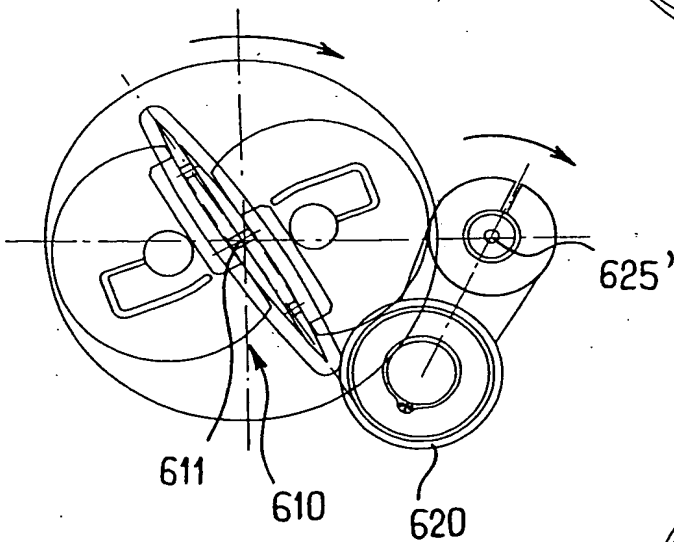
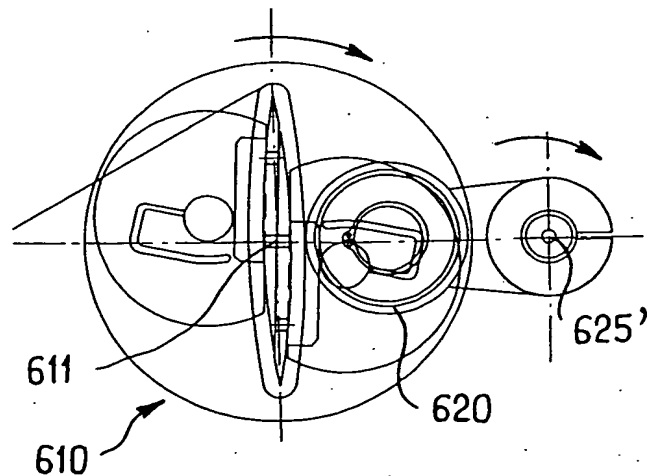


FIG. 46H



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FIG. 47A

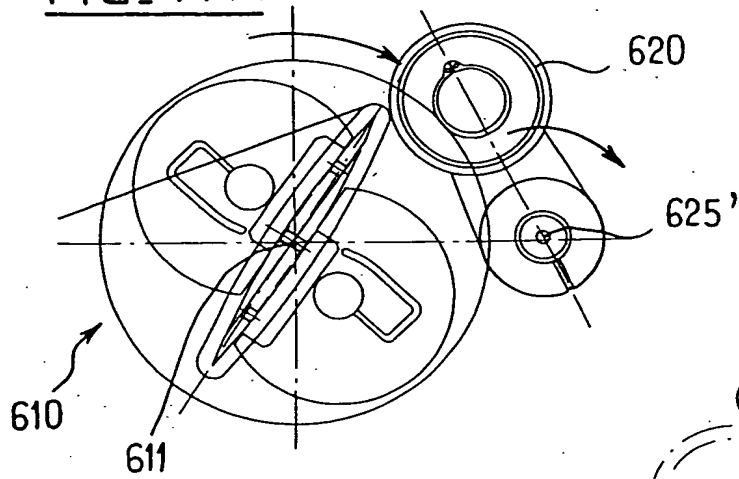


FIG. 47B

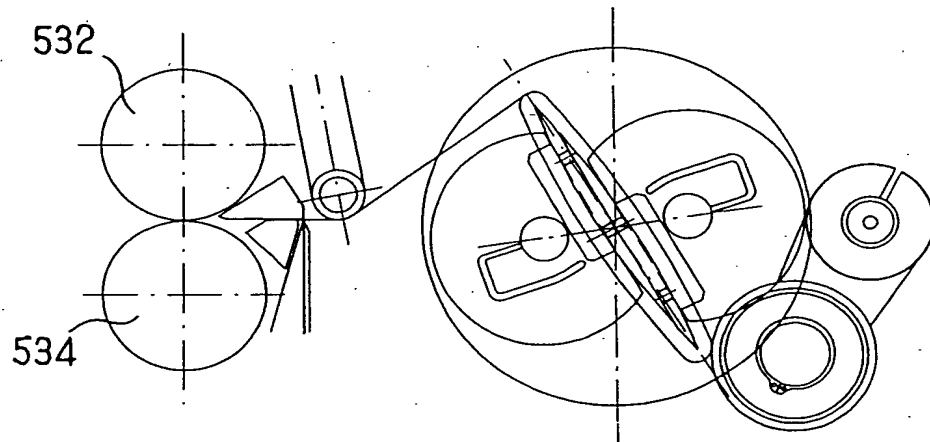
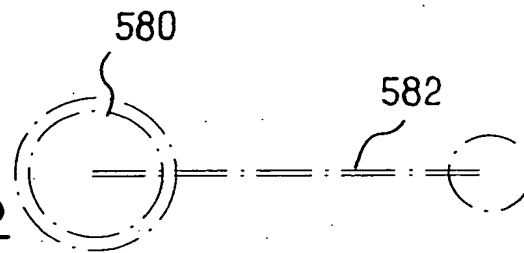


FIG. 47C

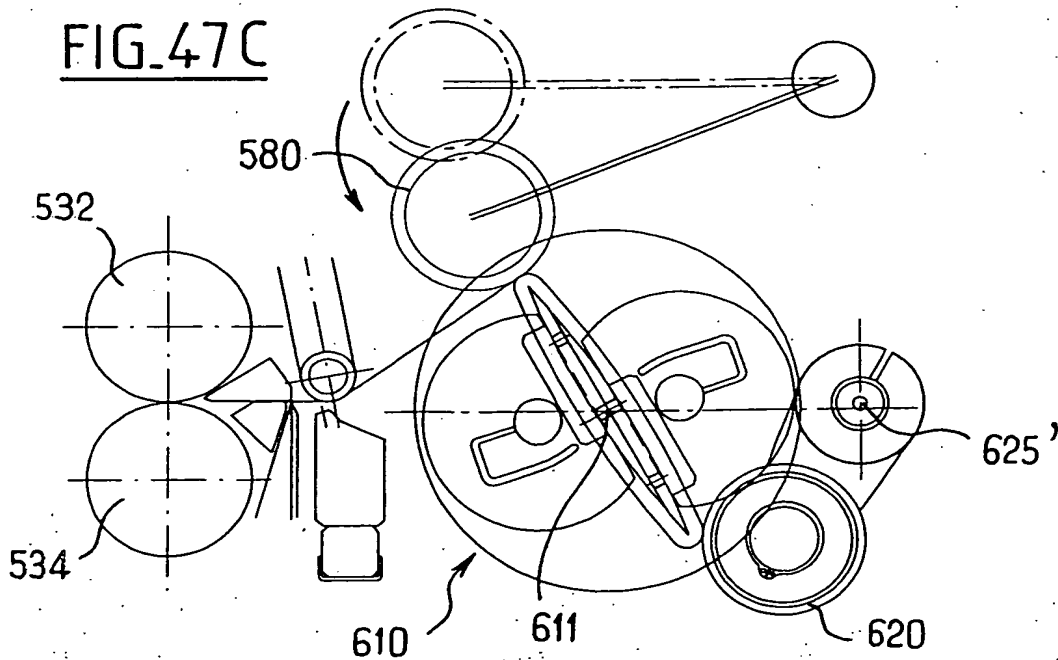


FIG. 47D

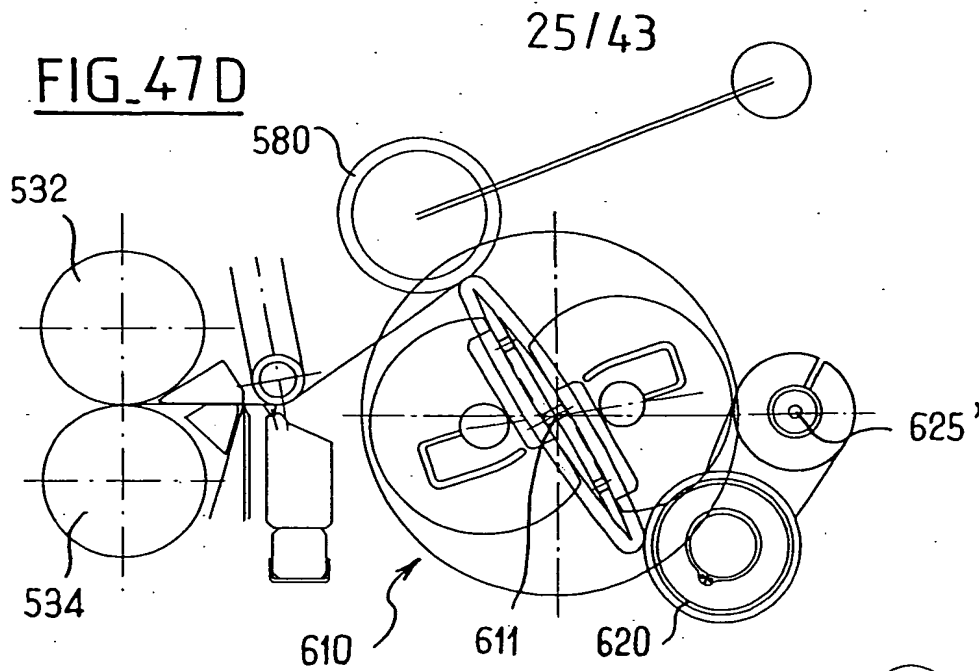


FIG. 47E

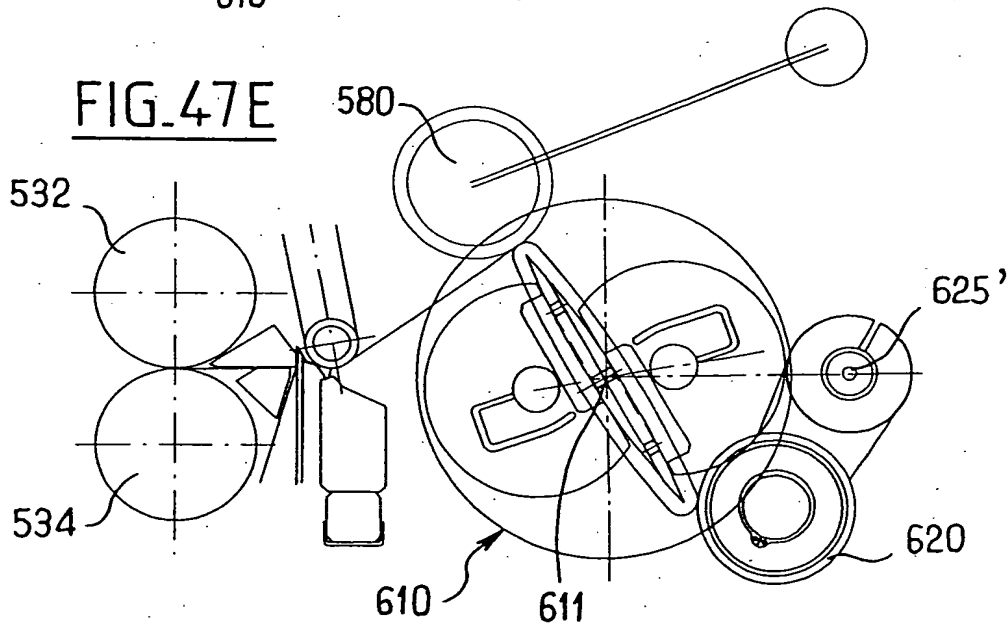
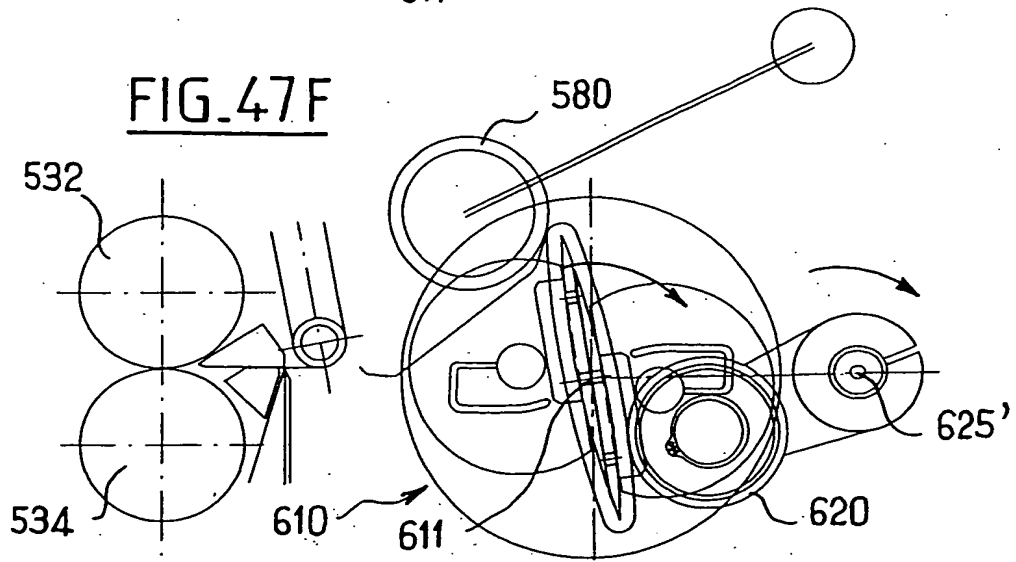


FIG. 47F



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FIG. 48

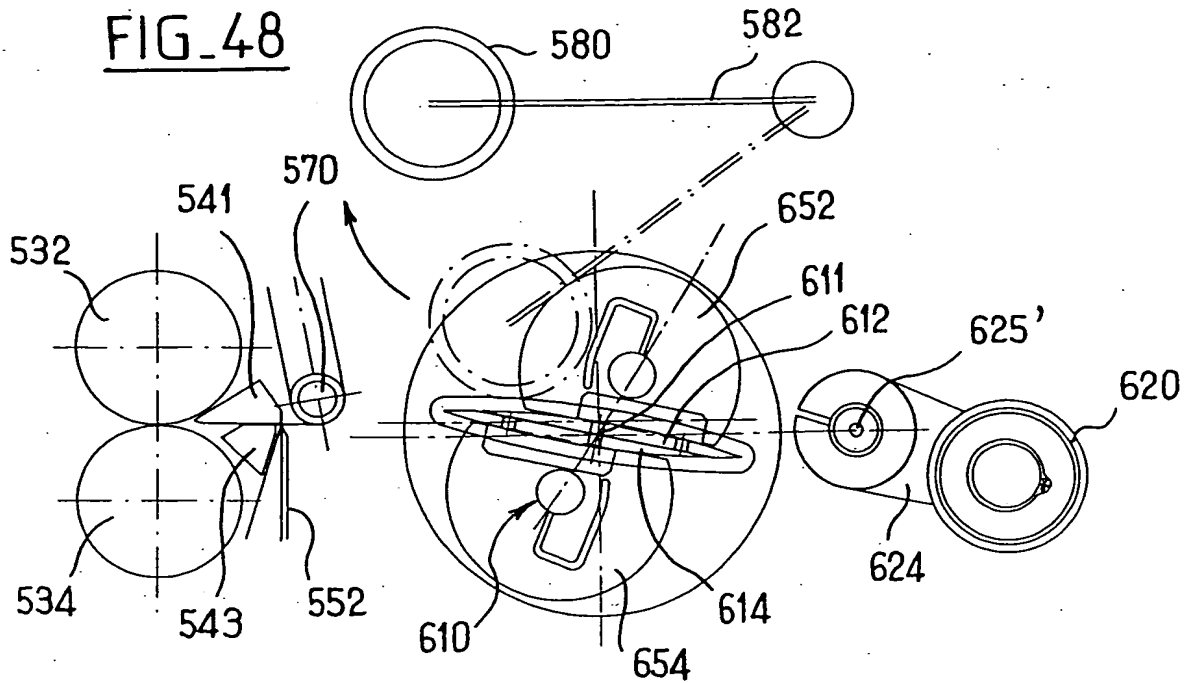


FIG. 49

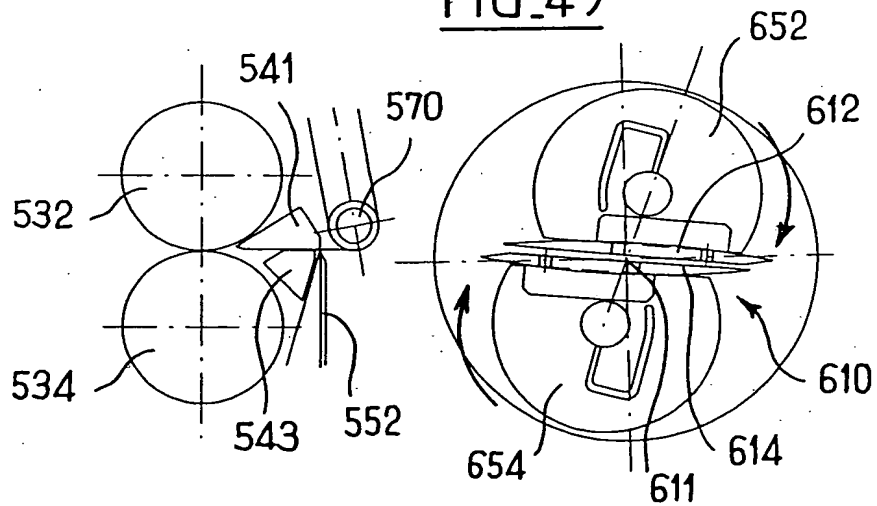
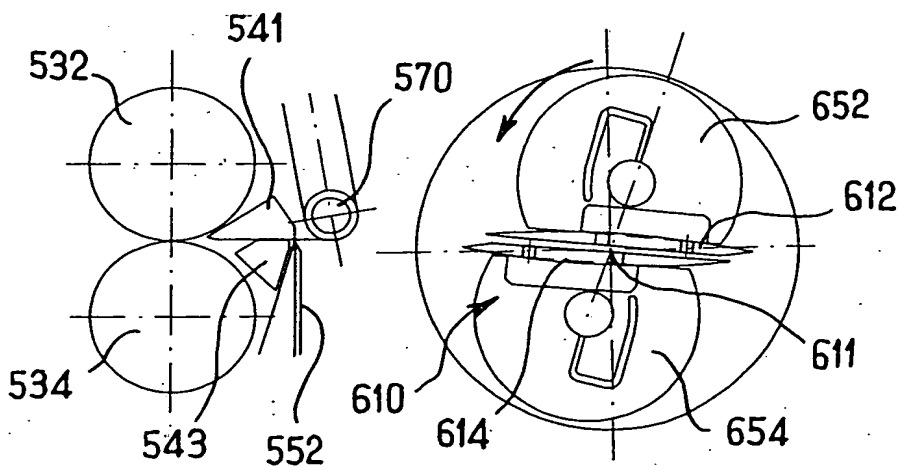


FIG. 50



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FIG. 51A

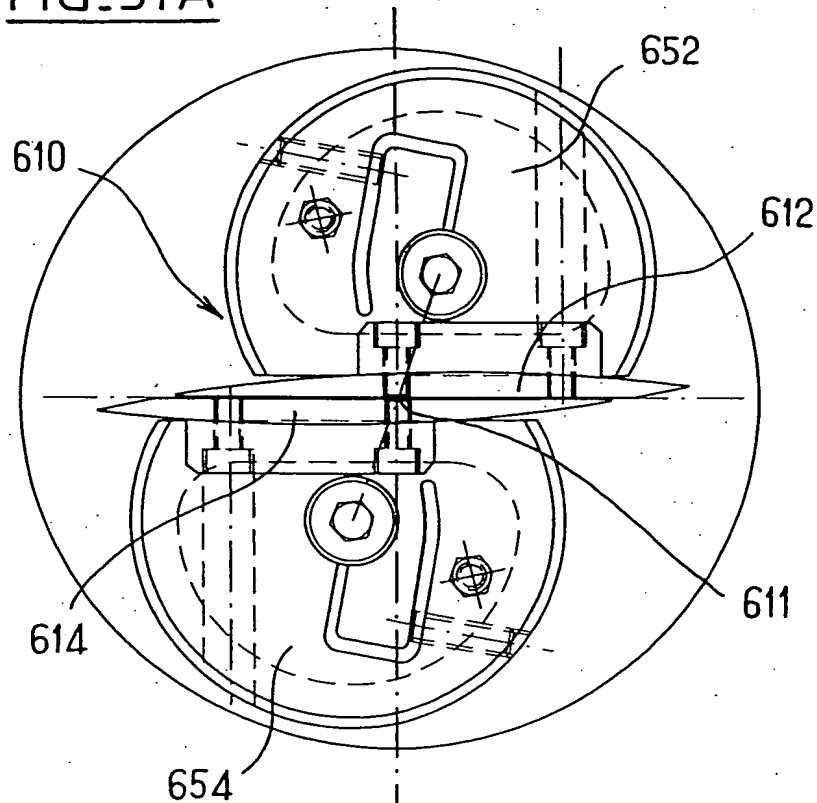
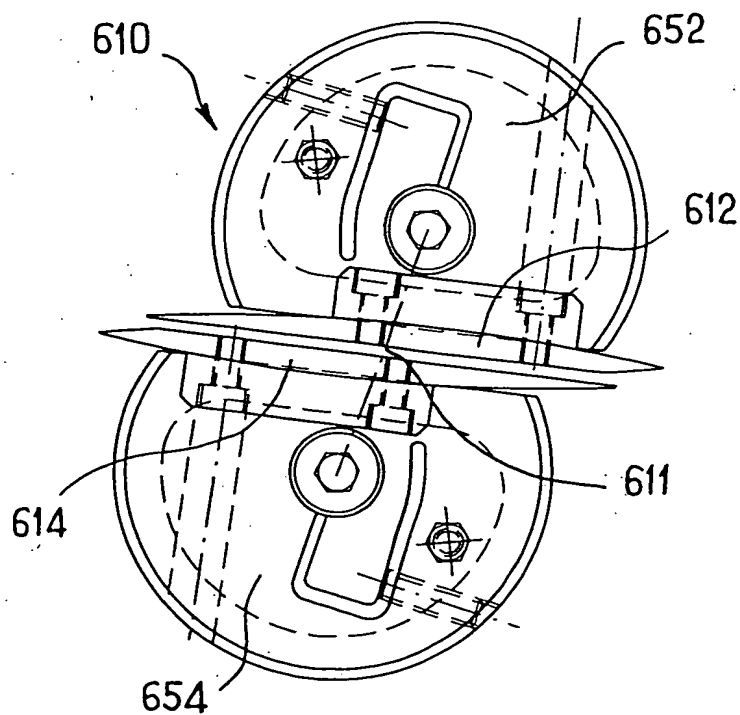


FIG. 51B



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FIG. 51C

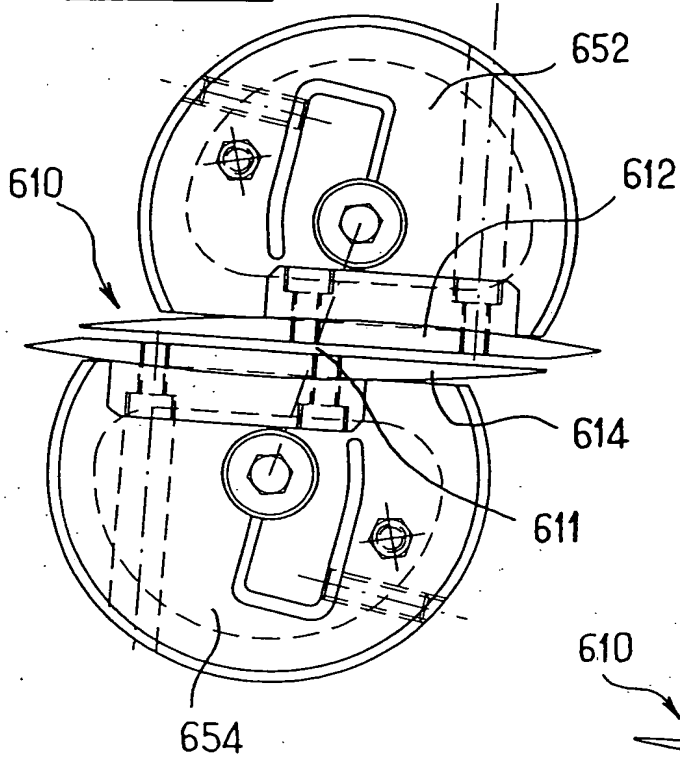


FIG. 51D

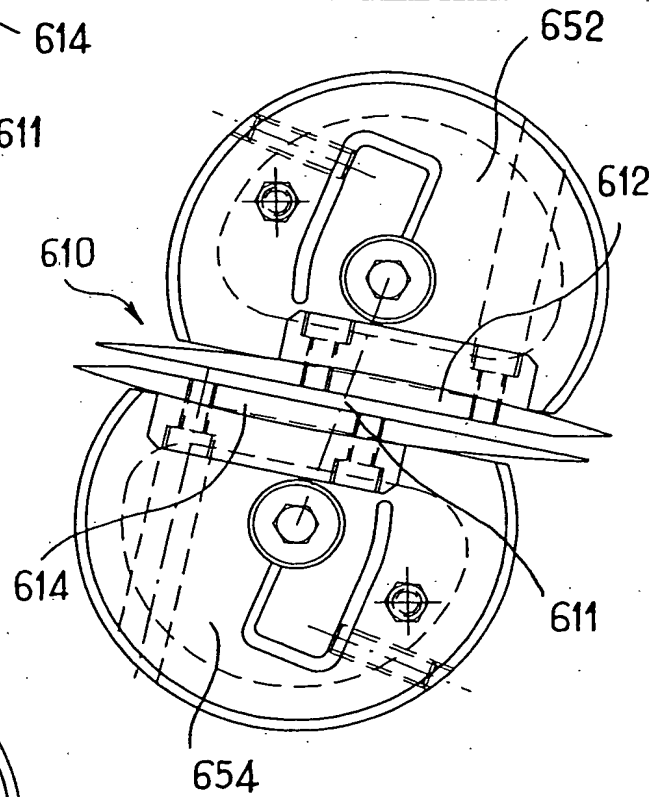
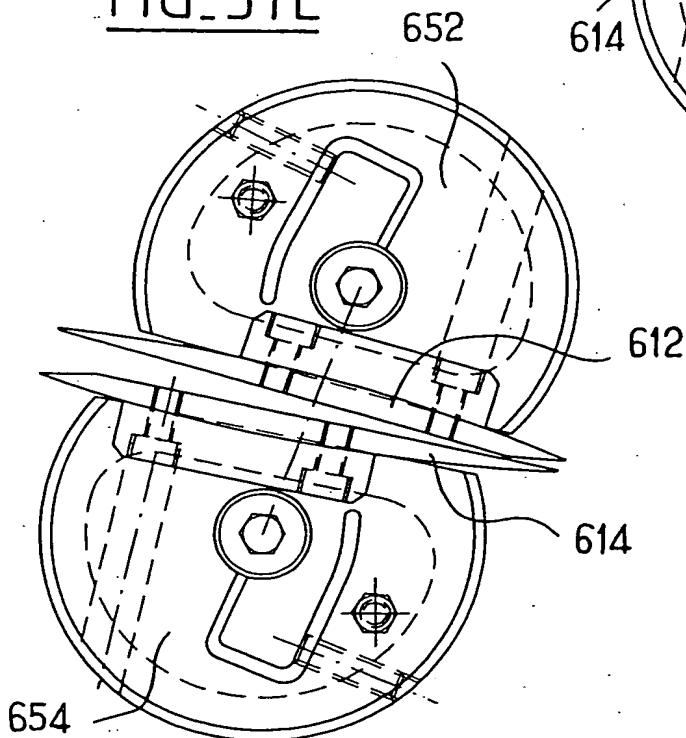


FIG. 51E



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FIG. 52A

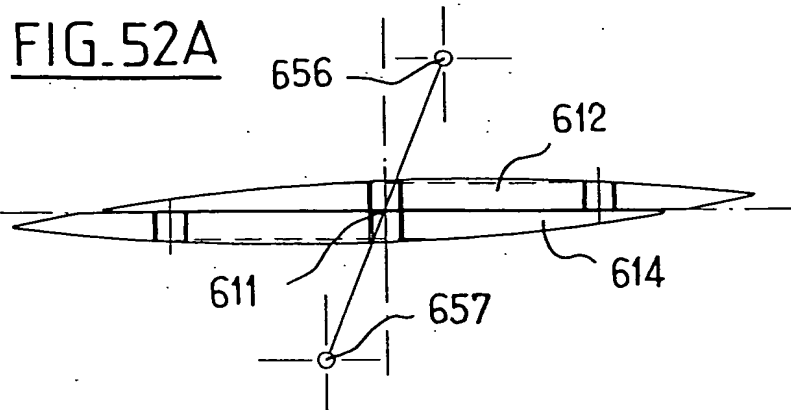


FIG. 52B

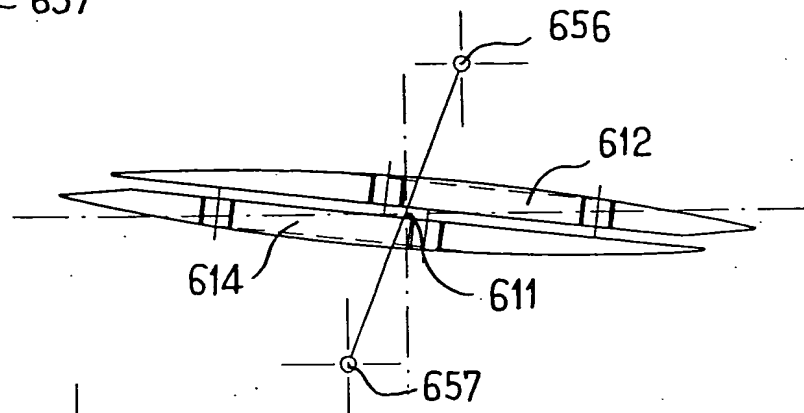


FIG. 52C

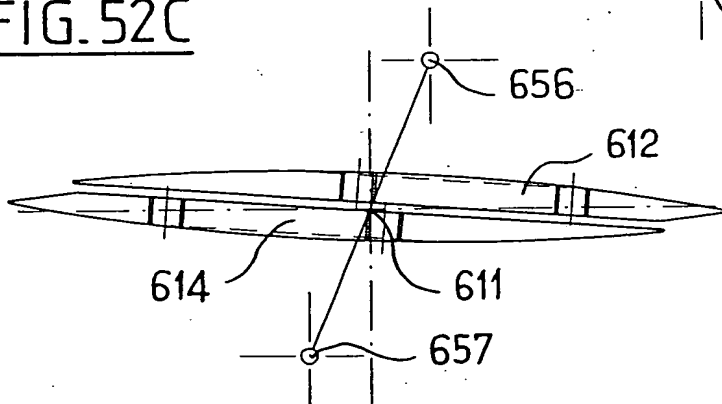


FIG. 52D

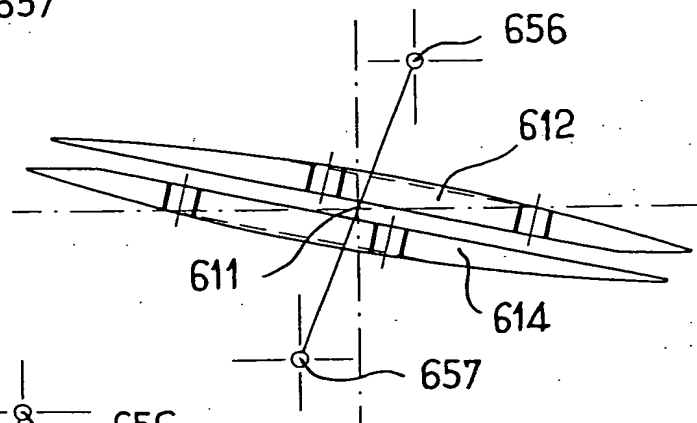
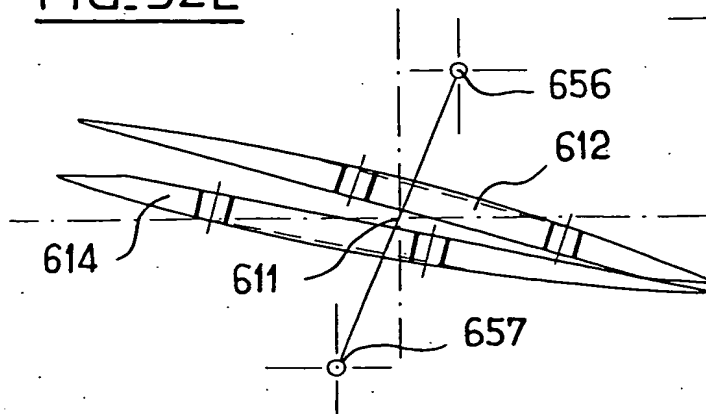


FIG. 52E



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FIG. 53A

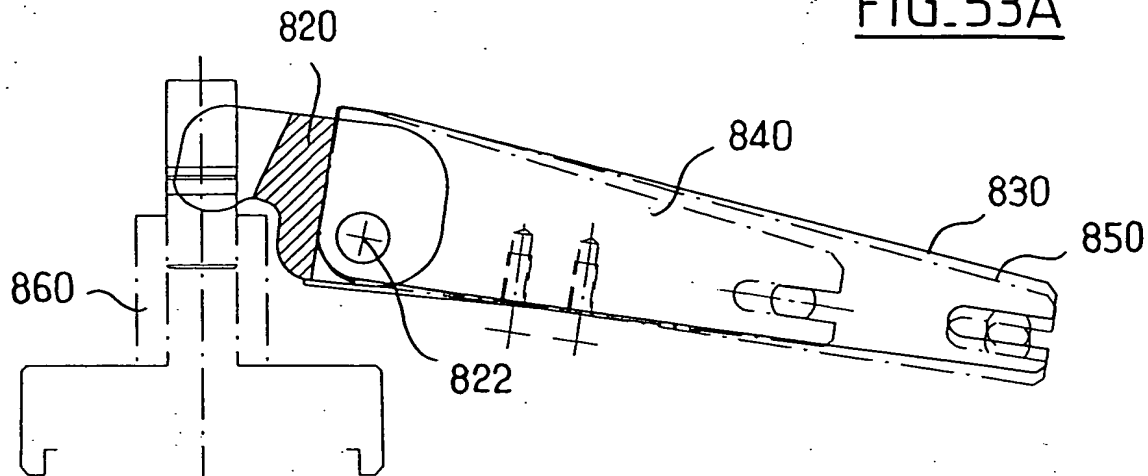


FIG. 53B

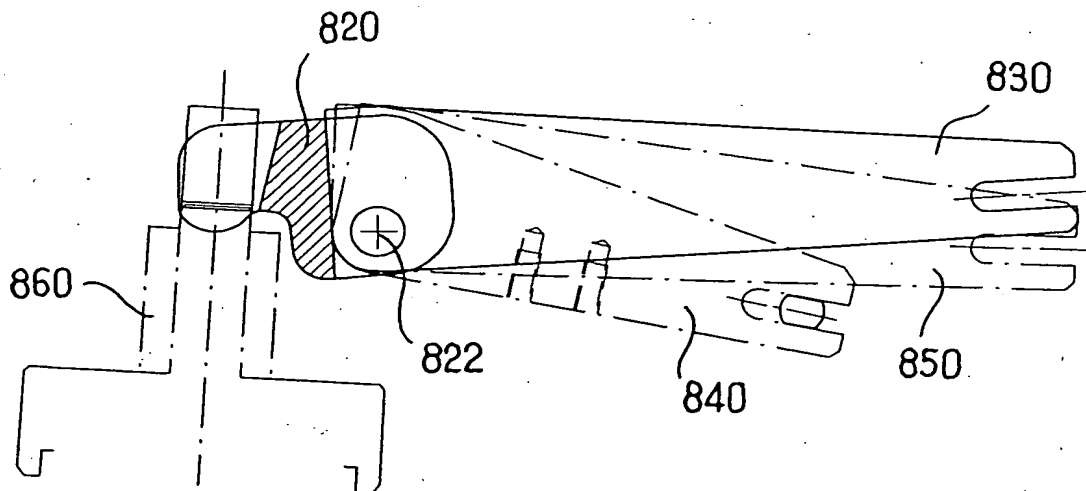
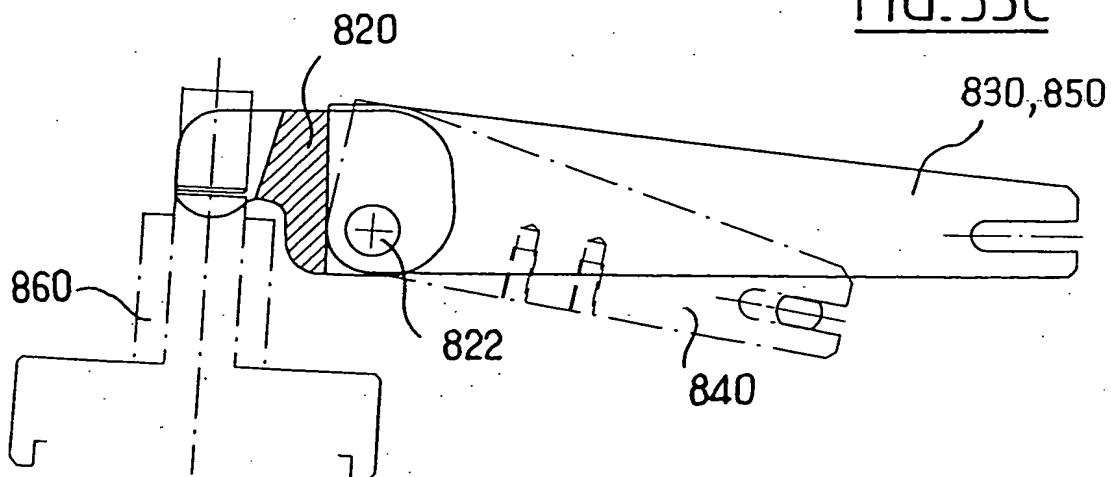


FIG. 53C



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FIG. 53D

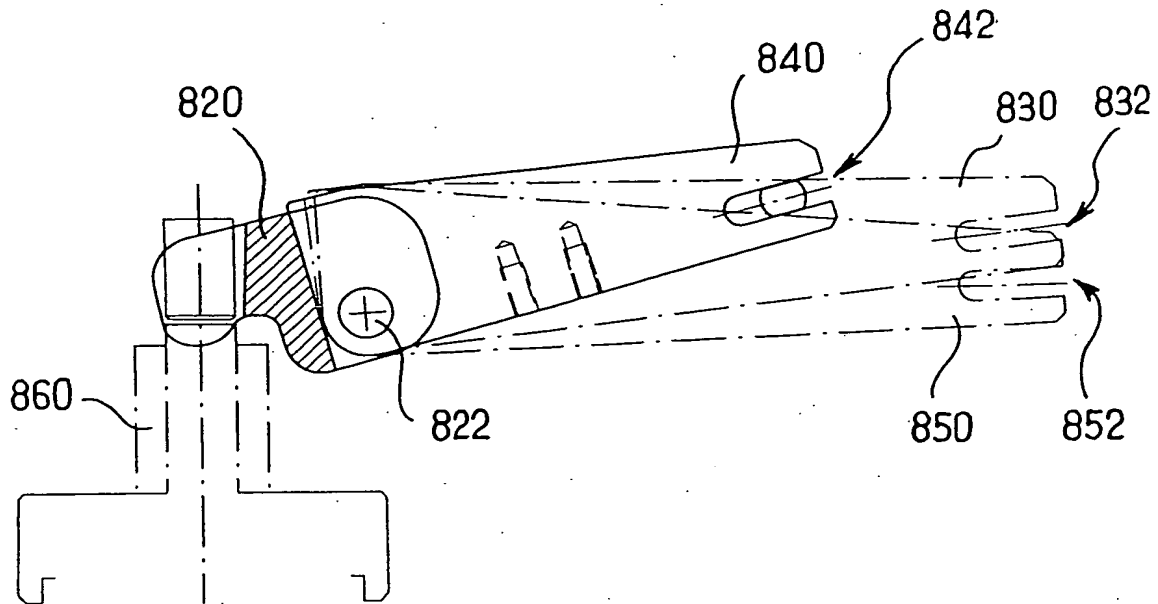
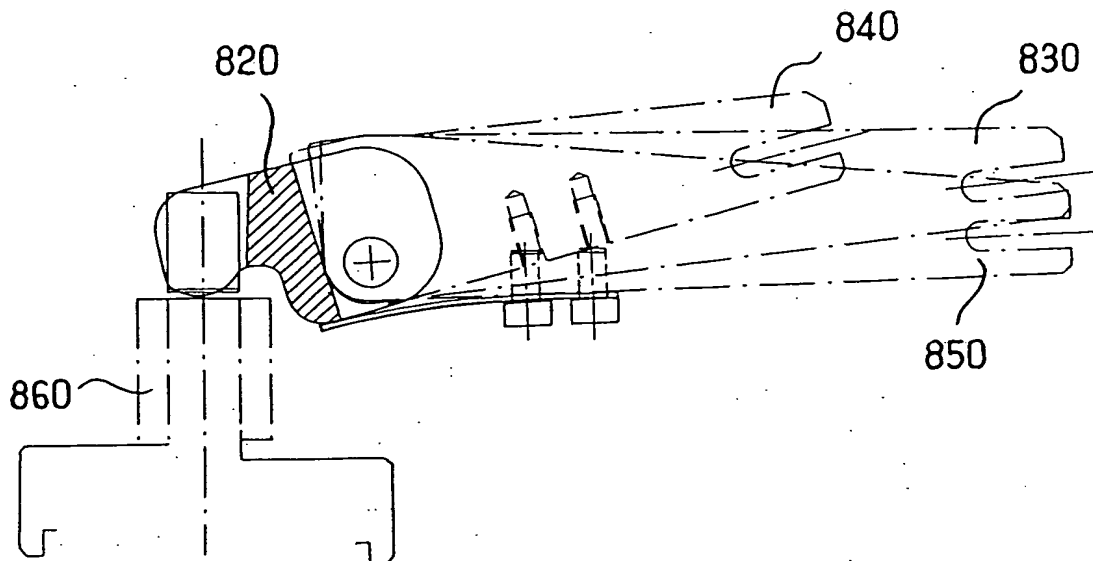


FIG. 53E



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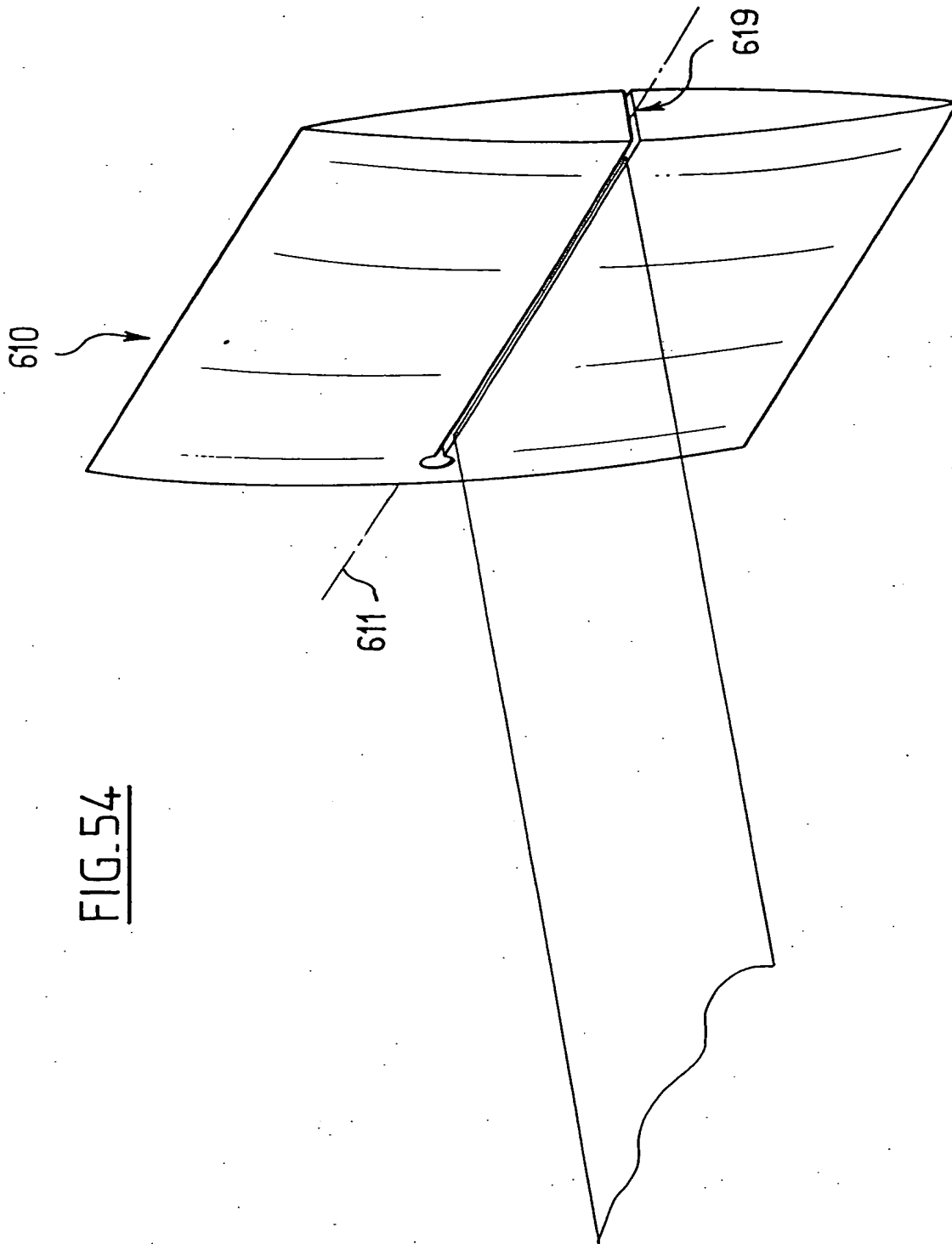


FIG. 54

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FIG. 55A

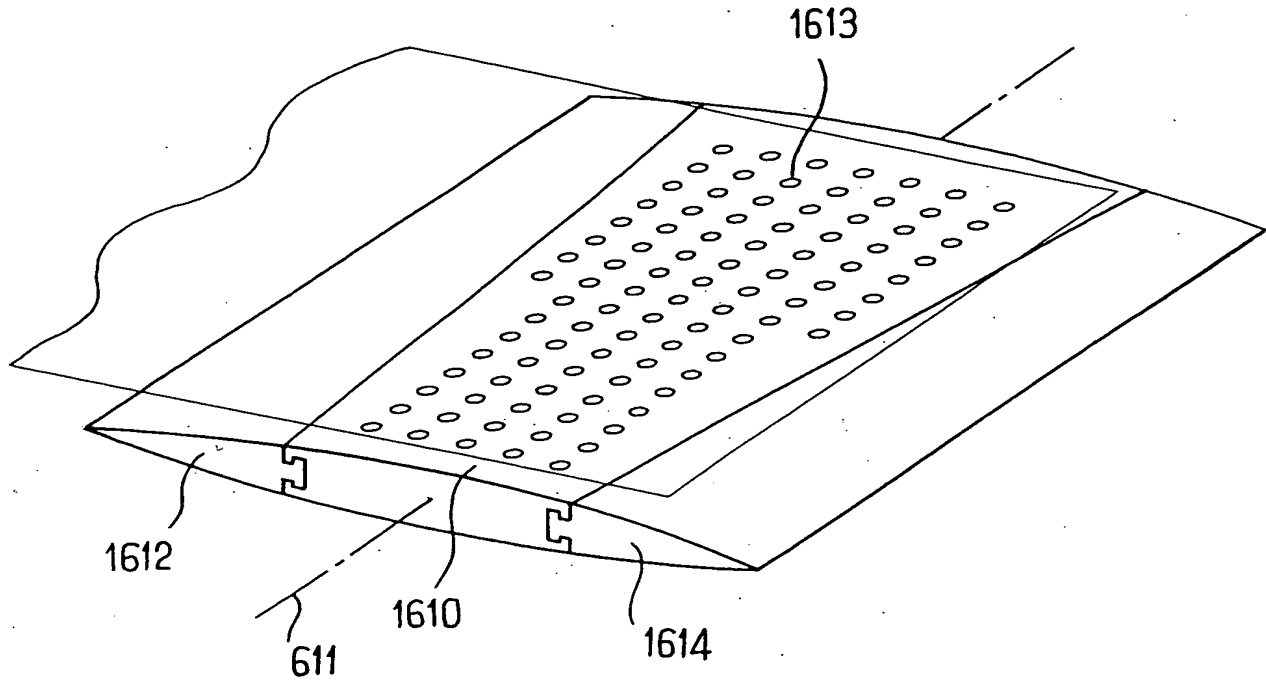
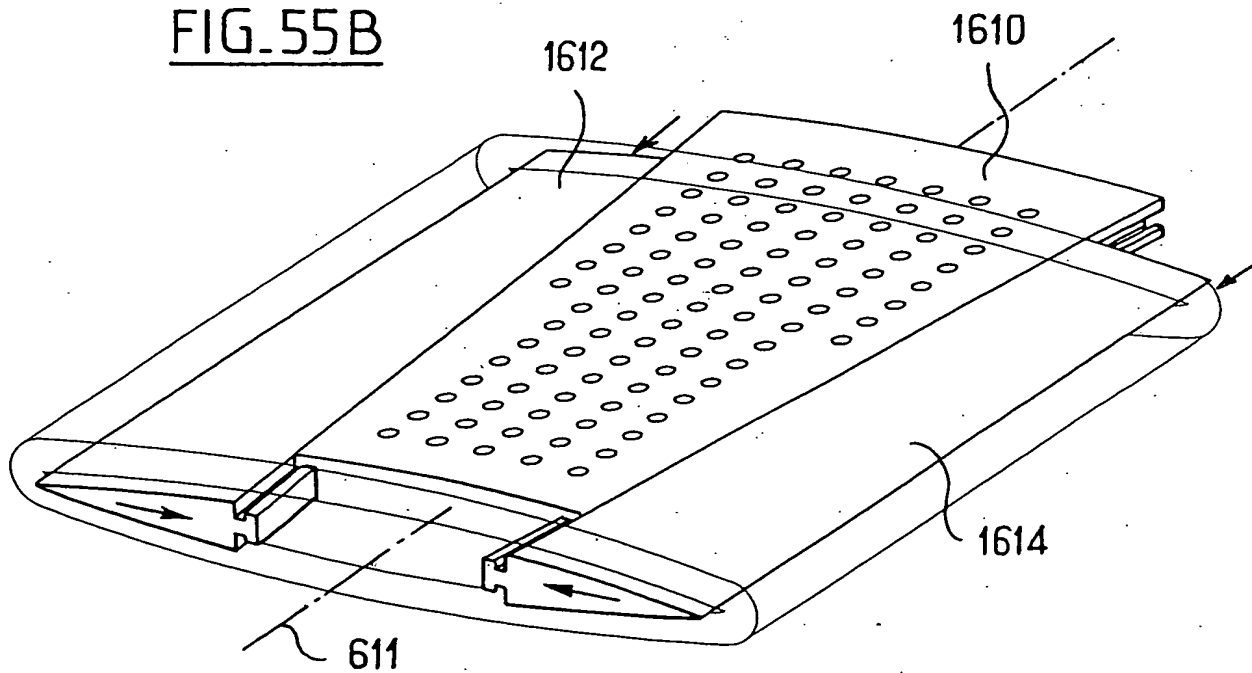


FIG. 55B



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FIG. 56C

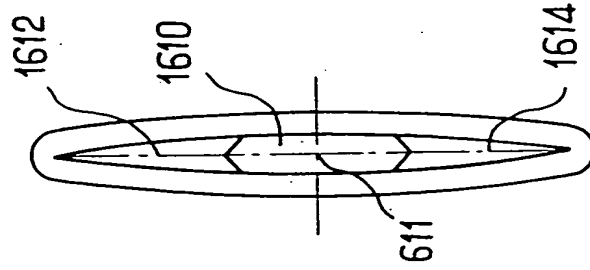


FIG. 56B

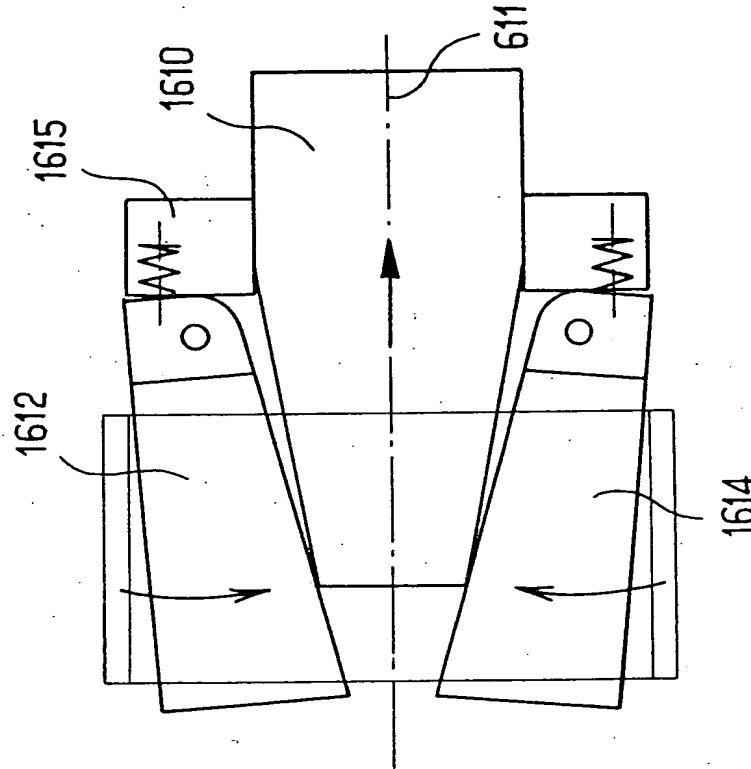
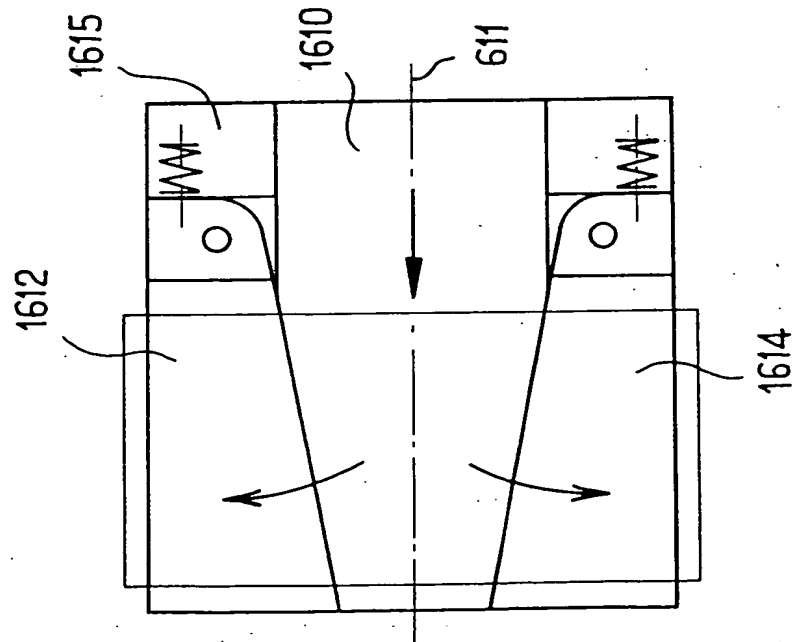


FIG. 56A



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FIG. 57

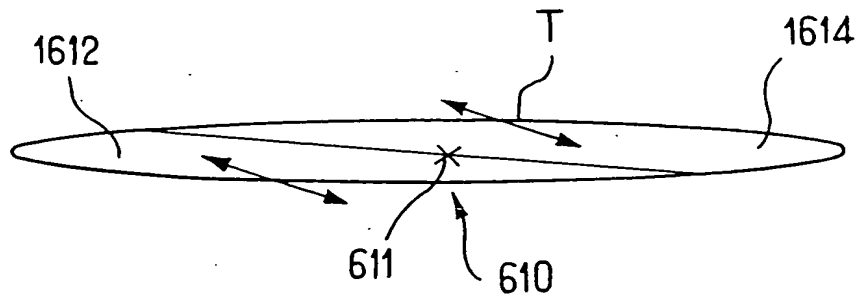


FIG. 58

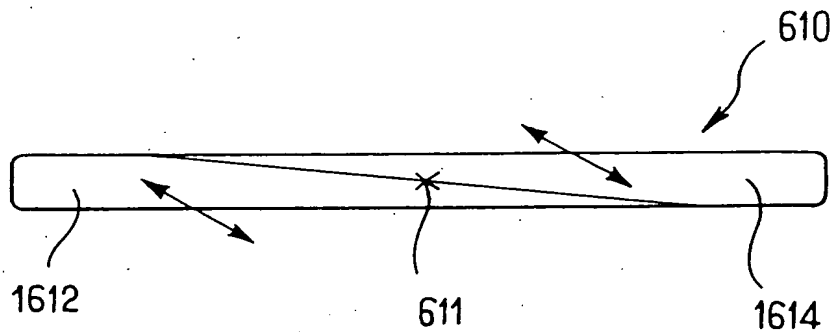
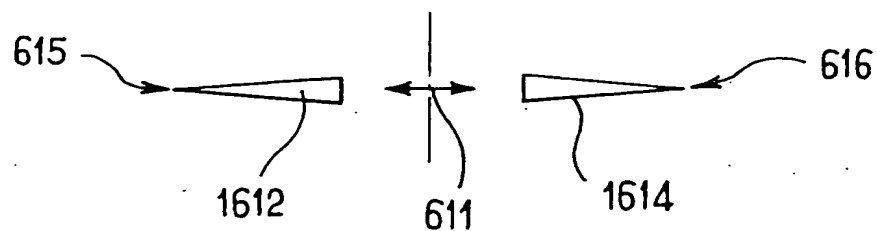


FIG. 59



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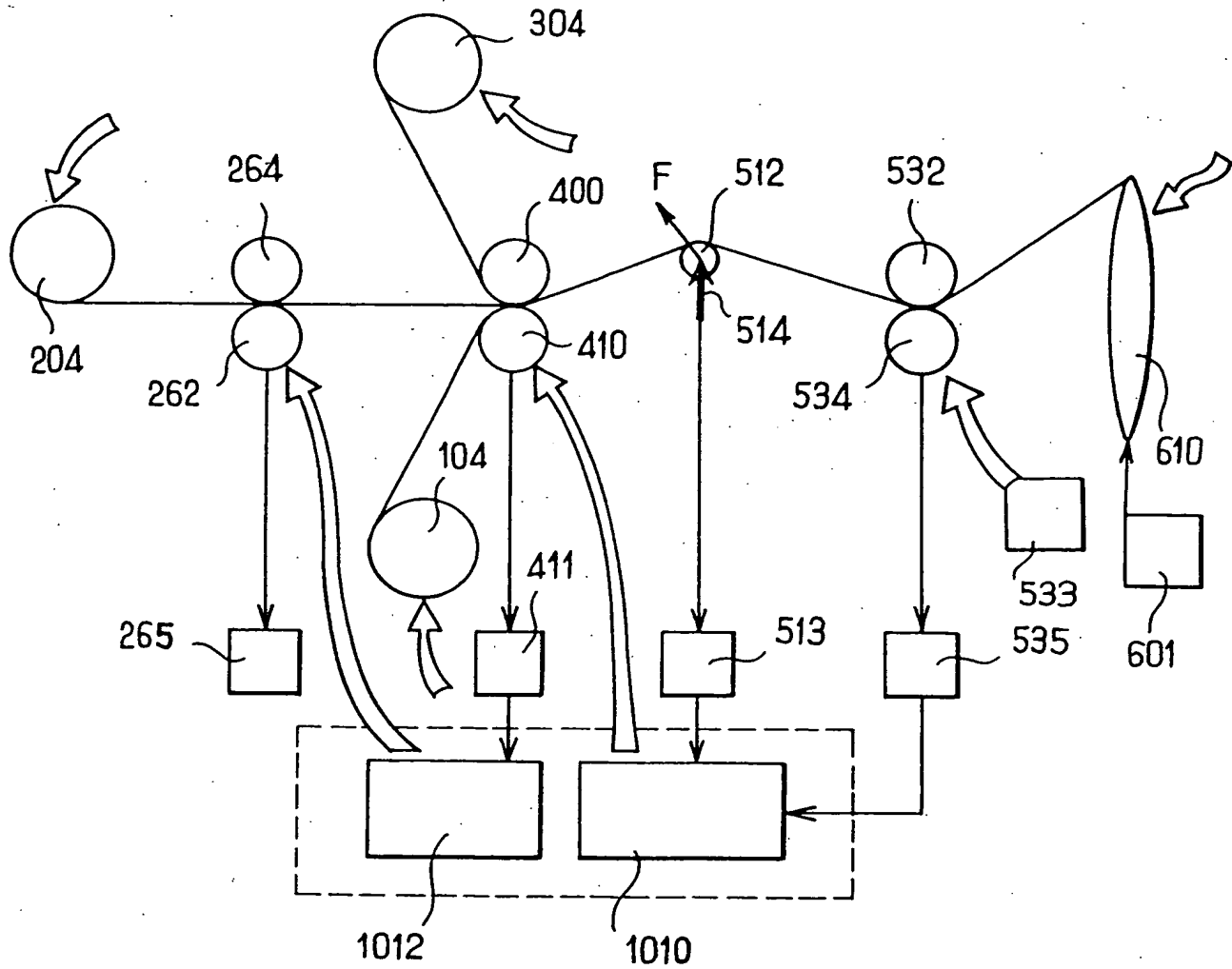


FIG. 60

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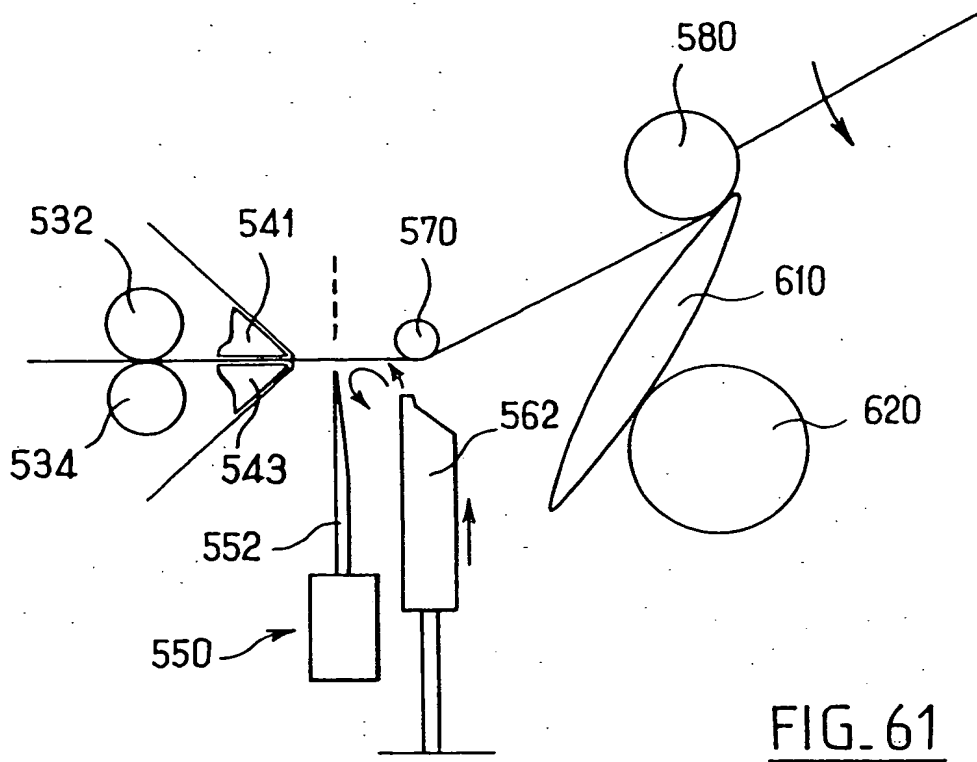


FIG. 61

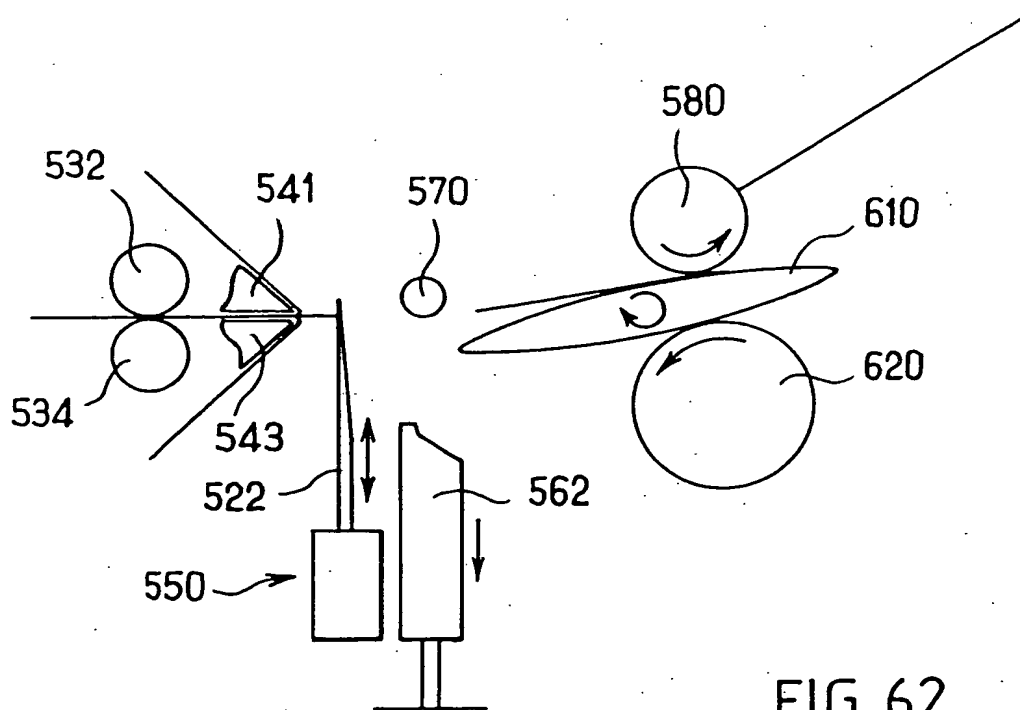


FIG. 62

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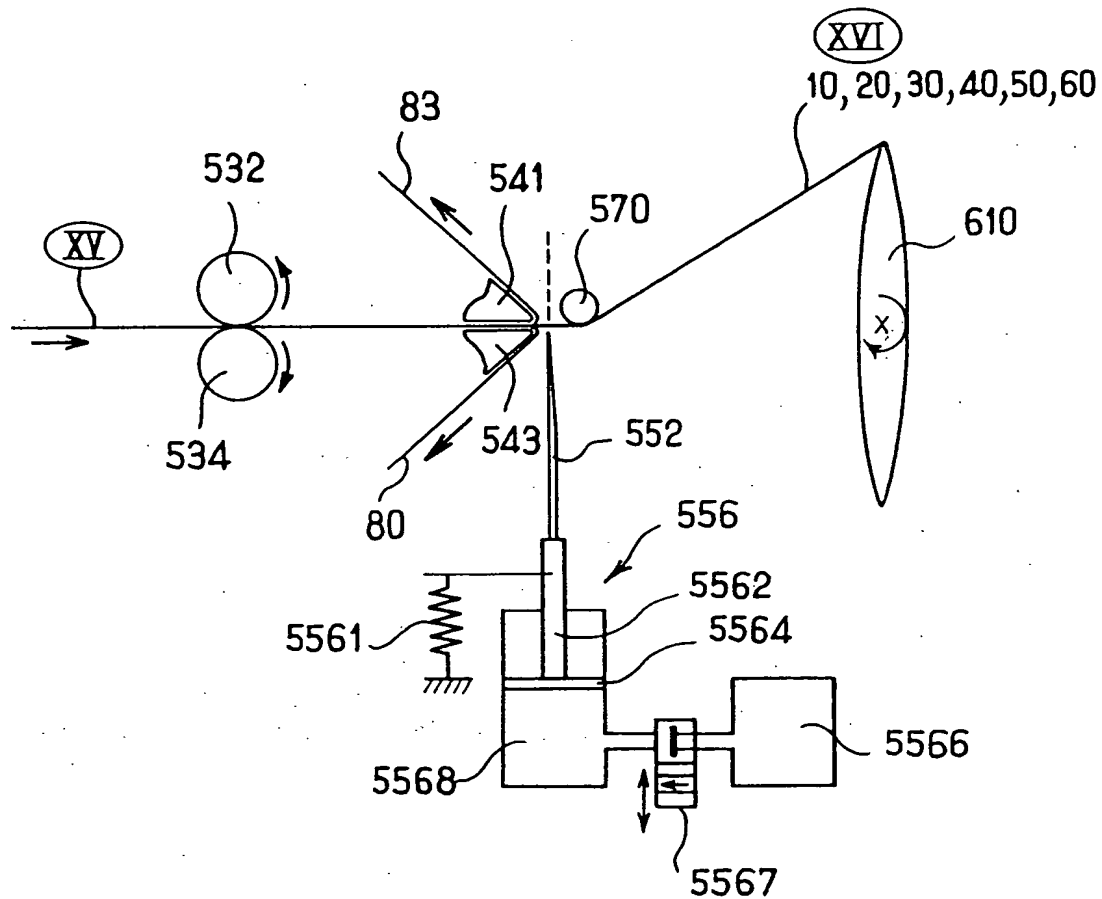
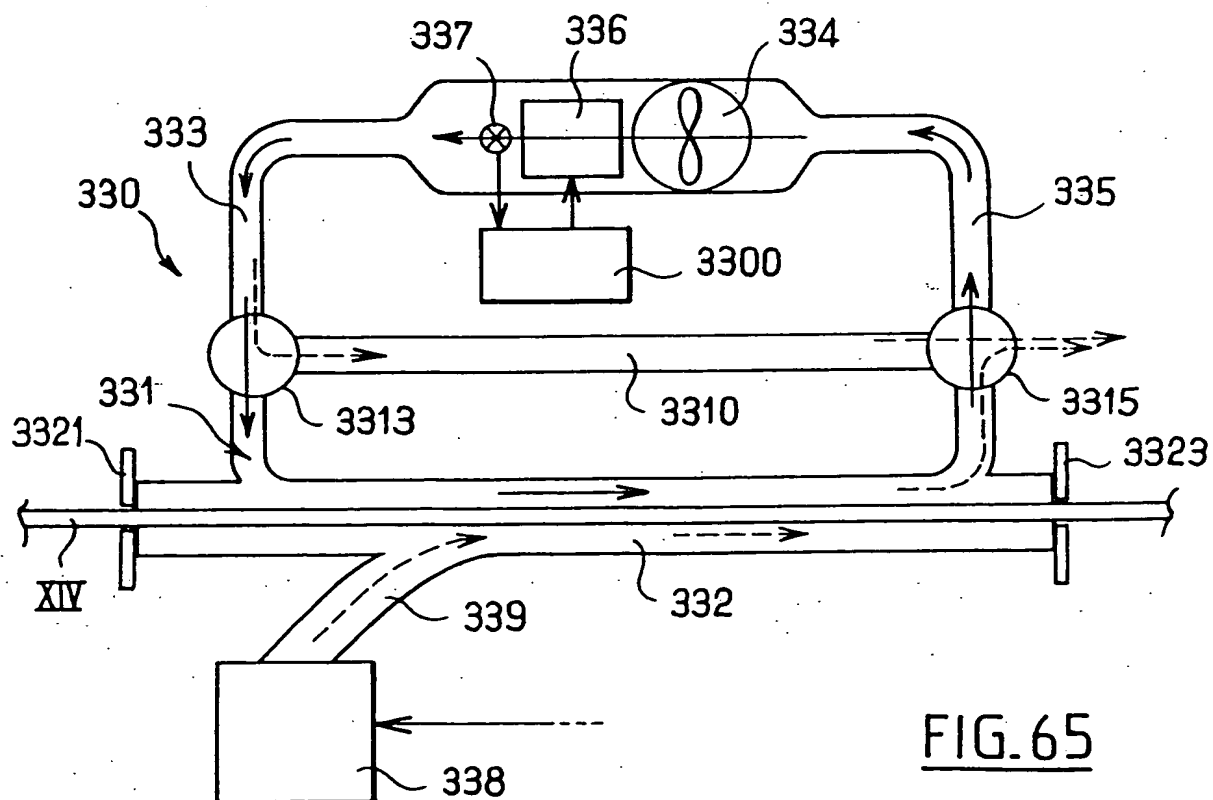
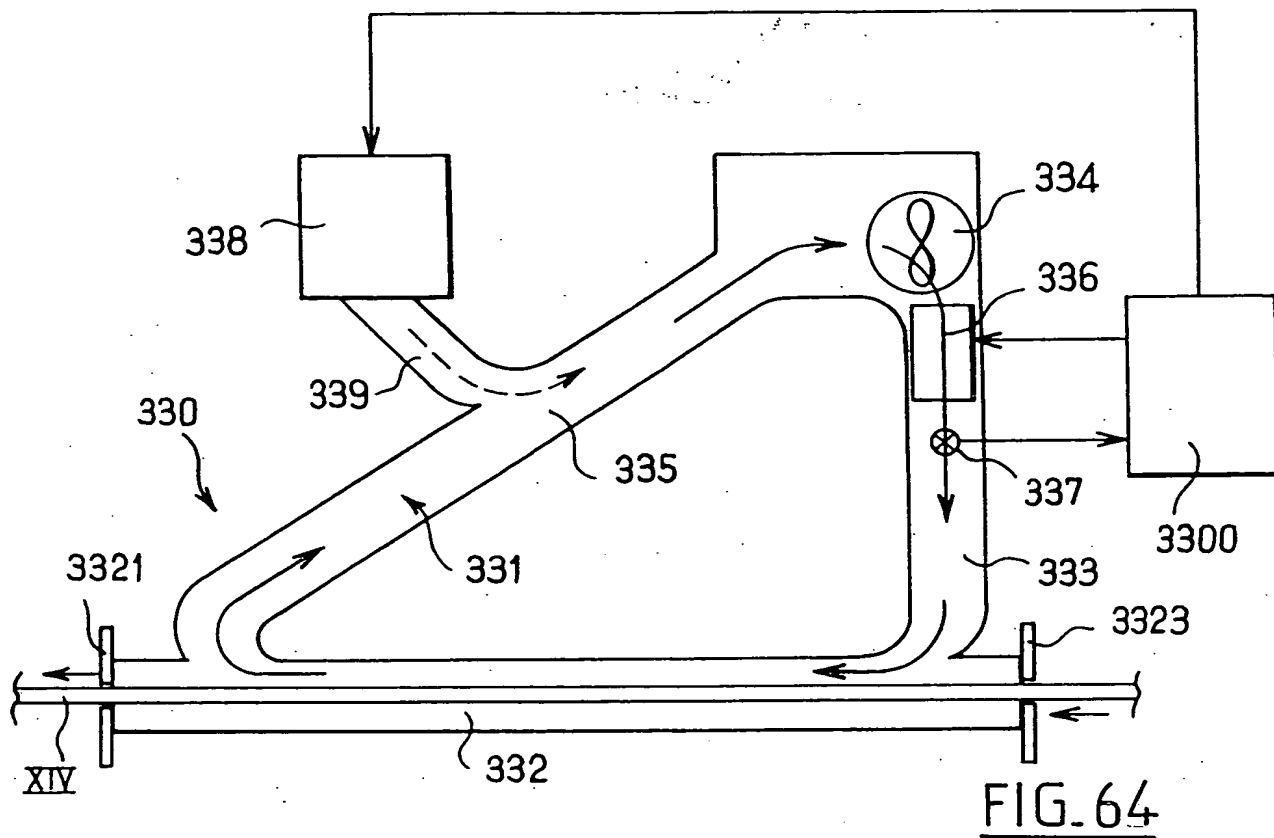


FIG. 63

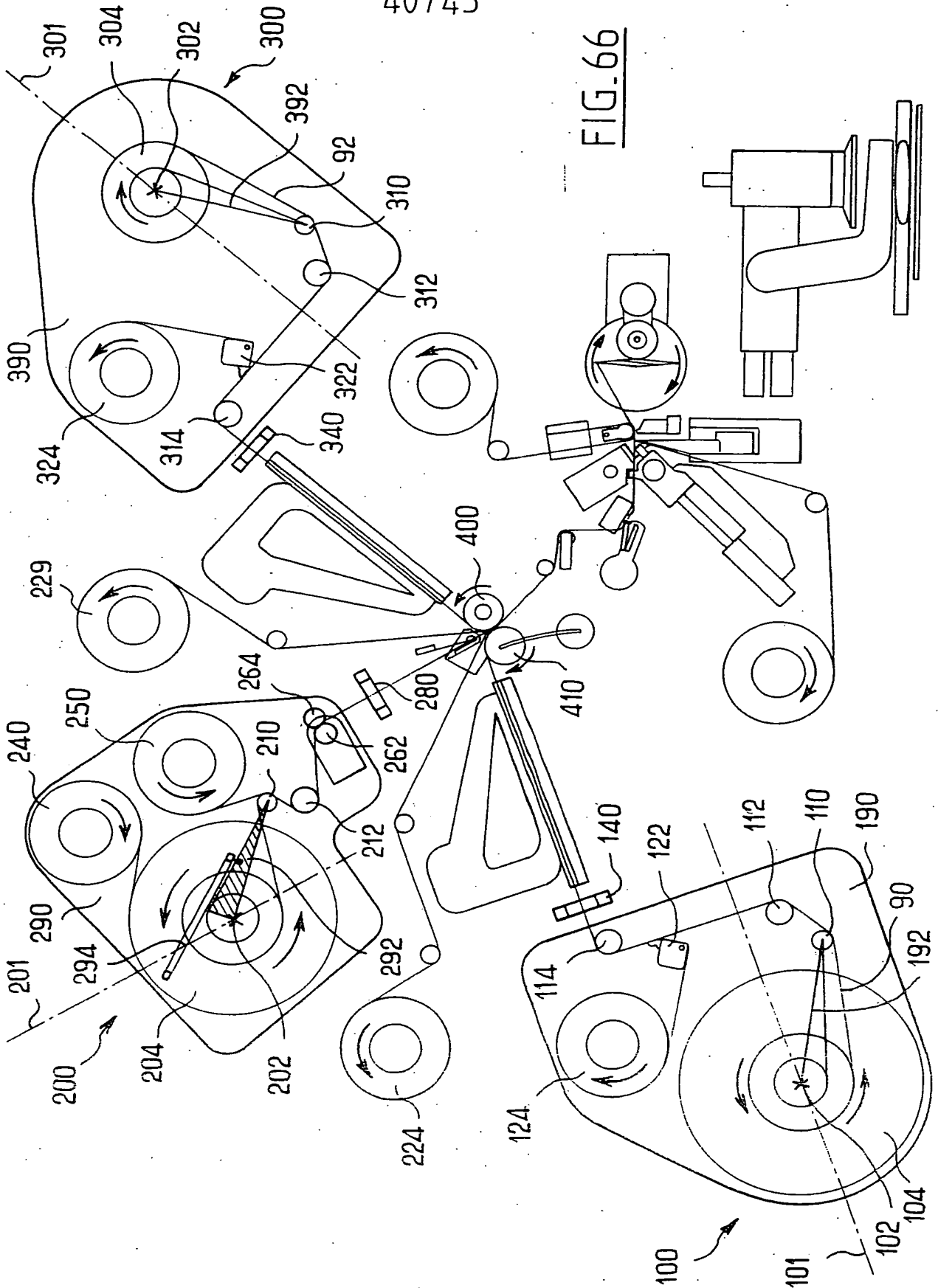
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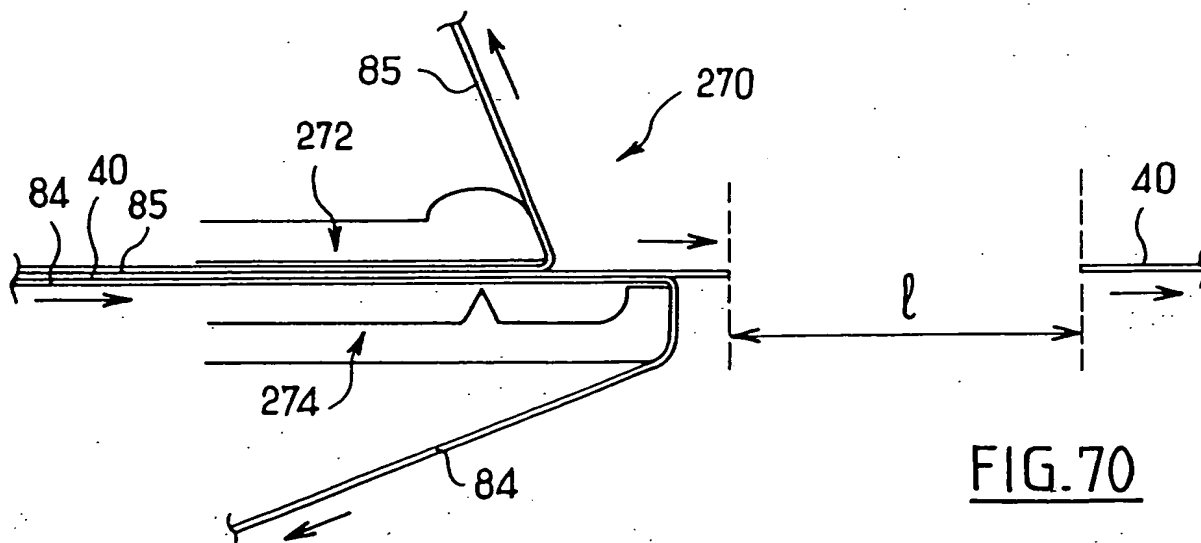
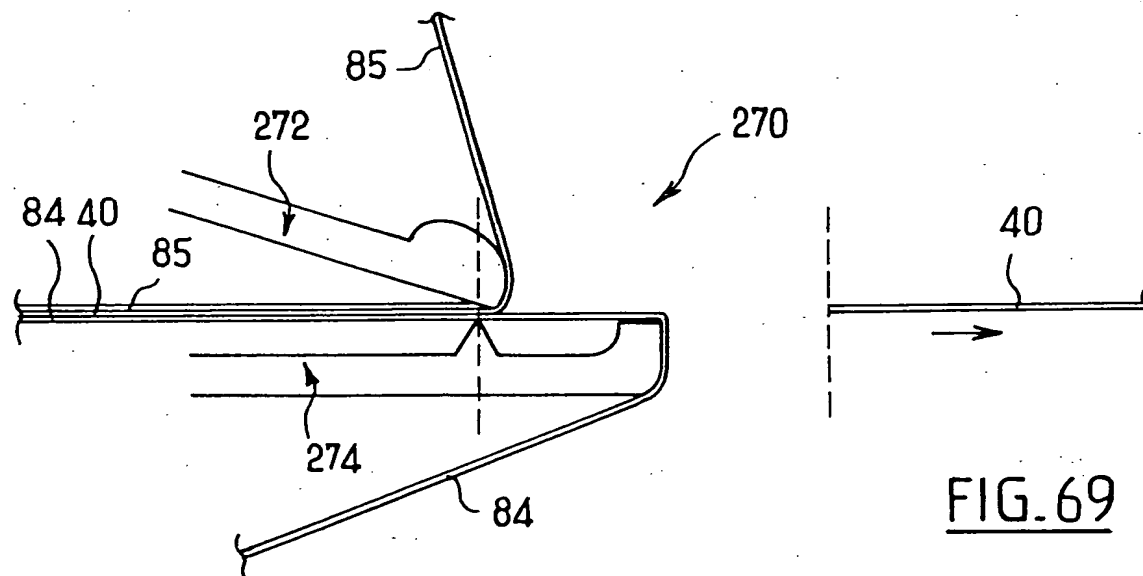
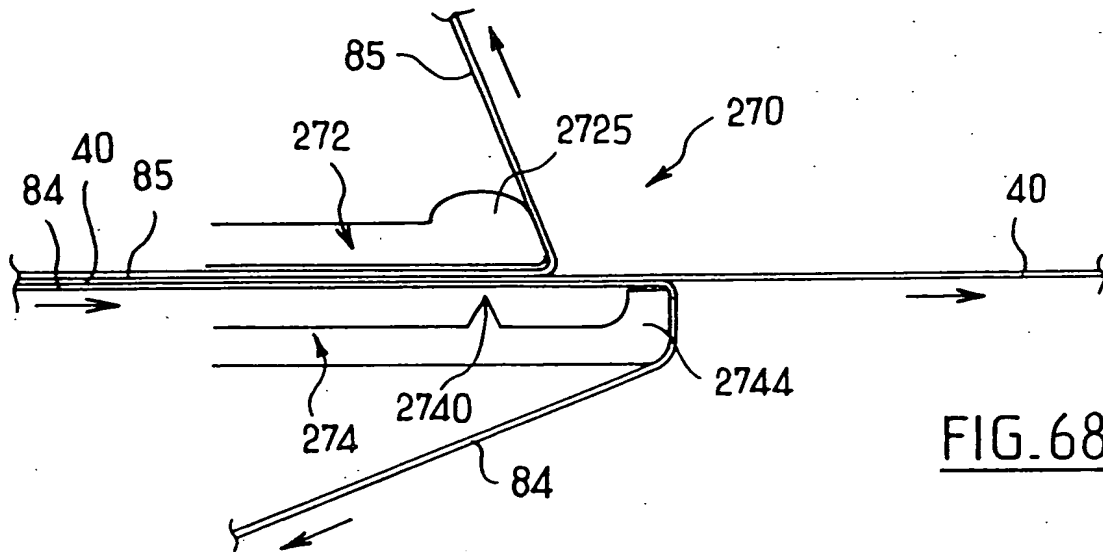
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FIG. 66



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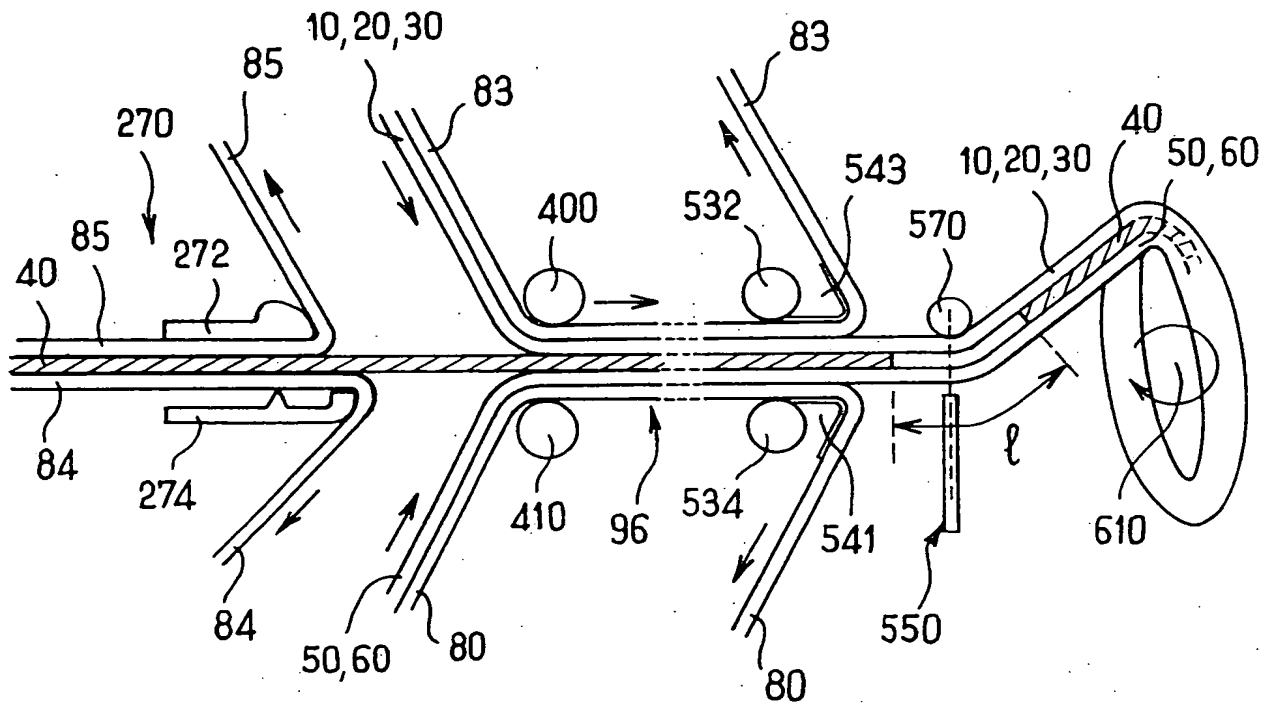


FIG. 71

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